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THE PROBLEM OF TOXIC GOITRE*

BY

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(*With Special Plate*)

I propose in this paper to make some remarks on the problem of toxic goitre, but in truth this fascinating and elusive disease fairly bristles with problems, and there are few conditions, if any, with which surgeons are commonly concerned, about which we have to admit so much uncertainty. The treatment of the disease is at present by common consent mainly a matter for the surgeon, and the practical results of operative measures have so far outstripped our pathological knowledge that our operations stand in some danger of the charge of empiricism.

My observations are based upon a personal series of 785 cases of toxic goitre that I have operated on, with twenty-nine deaths—a mortality rate of 3.7 per cent. All the goitres have been examined histologically.

Classification

With many diseases, as our knowledge grows, our classification, both clinical and pathological, tends to become ever more complex. With toxic goitre this is not the case; there has been a marked tendency during the past few years towards a simplification, amounting almost to unification. At first sight there appears to be a clear distinction between the cases of primary exophthalmic goitre occurring in young women about the period of adolescence and the so-called toxic adenomatous goitres. In the latter type a middle-aged woman who has had a lump in her thyroid for years finds after some emotional strain or some illness, such as an attack of influenza, that her heart is beating faster and she is losing weight and strength. She has less of the peculiar restless irritability than the case of primary Graves's disease, and little tendency to exophthalmos, but though the tachycardia may not be extreme the cardiac effects are graver, and she soon shows a marked degree of auricular fibrillation.

Are these clinical types, which we call primary Graves's disease in the one case and toxic adenomatous goitre or secondary toxic goitre in the other, to be regarded as different or as essentially similar diseases? Plummer of the Mayo Clinic has maintained that they are really different diseases. Not only has he stressed the points on which they differ clinically, but he has stated that in primary exophthalmic goitre the thyroxine molecule is deficient in iodine, whereas in toxic adenoma the thyroxine molecule is not deficient in iodine, but is secreted in excess; there is, in fact, a true hyperthyroidism. He has sought to support his biochemical views by the results of iodine therapy, and claims that whereas iodine causes a remission of symptoms in primary Graves's disease it makes a patient with toxic adenoma worse.

Much as we owe to Plummer for the introduction of iodine medication, it must be admitted that his chemistry is unsound, and his statement as to the harmful effect of iodine in toxic adenoma is not in accord with clinical experience. Since Harington in 1928 not only established the exact chemical composition of the thyroxine molecule, but succeeded in synthesizing thyroxine, we must abandon Plummer's conception that there is something qualitatively abnormal in the thyroid hormone in primary Graves's disease. Clinically we know that we can as a rule obtain just as marked a remission in toxic adenomatous goitre by the administration of iodine as in primary exophthalmic goitre.

Difficulties in Classification

The more one sees of patients suffering from hyperthyroidism the more difficult one finds it to separate them into clearly marked groups, either on a clinical or on a pathological basis, with any real confidence. There are, it is true, certain obvious and outstanding differences, as I have already indicated, between the primary exophthalmic goitre at one end of the scale and a toxic adenomatous goitre at the other. But between them we see a large number of cases showing clinical and pathological features that lead us by degrees from one type to another.

It might be thought that the presence of one or more adenomata in a goitre marks it out as something quite distinct from the diffuse hyperplastic goitre of primary Graves's disease. But it is coming to be recognized generally that these so-called adenomata, in the majority of cases, are not adenomata at all in the sense of benign new growths. They are localized areas of hypoplasia with increased colloid storage. In the strict pathological sense the term "adenoma" should be limited to the type of encapsuled growth, consisting of interlacing columns of cells with little or no colloid, which is known as the foetal adenoma (Fig. 1 on Special Plate). There is no doubt that many of the cases which come before us as nodular goitres began years ago as diffuse hyperplastic goitres associated with all the symptoms of primary Graves's disease. It is the recurring cycles of hyperplasia and involution which have gradually transformed them into nodular goitres. Others, again, have started as the diffuse colloid goitres of adolescence without toxic symptoms, and

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gradually in the course of years have developed one or more so-called colloid adenomata before the onset of any toxic symptoms. The prolonged administration of iodine will gradually transform a diffuse hyperplastic goitre into a nodular goitre, though the nodules are usually small and numerous, and scattered more or less uniformly through the enlarged gland. Yet other difficulties of clinical classification that must be faced are the large proportion of cases that have genuine primary hyperthyroidism without exophthalmos, and a certain smaller number that show marked exophthalmos and constitutional symptoms without any obvious goitre.

An Illustrative Case

I cannot do better than illustrate the difficulty of classification by a recent case.

A married woman, aged 37, was referred to me with the following story. There was no family history of goitre, and she had had no evidence of thyroid trouble until nine years ago, when, after the emotional shock of having a still-born baby, she developed a goitre with exophthalmos and the other classical symptoms of primary Graves's disease. A slow and spontaneous improvement followed, but five years later she found her father in a fainting condition and thought he was dead. This second shock caused a severe relapse; but again she slowly recovered. Six months before she came under my care her two-year-old child was accidentally, by the blowing-to of a door, locked into a room where there was a pan of boiling water on the floor. In terror she broke a window to save the child from being scalded, and since then all her old symptoms had returned. But her goitre when I saw her was not the original diffuse form; she had a large single adenoma in the left lobe pushing the trachea well to the right, and the right lobe was not clinically abnormal.

The conclusion to which a study of this and other somewhat similar cases must lead us is that all the varying clinical types with which we meet are essentially one disease, which you may call toxic goitre or hyperthyroidism as you will. The clinical and pathological differences between them would appear to be conditioned to a large extent, but not entirely, by the age at which the toxic symptoms appear.

As we must have some classification let it be as simple as possible. Following Dunhill, I believe these cases are best classified as primary and secondary toxic goitres.

CLASSIFICATION OF TOXIC GOITRES

Primary.—(1) Early. (2) Late.

Secondary.—(1) Early. (2) Late.

By *primary* I mean that the onset of the toxic symptoms and the appearance of the goitre coincide more or less closely in time. By *secondary* I mean that the goitre precedes the toxic symptoms by a considerable time, and usually by several years. Each of these groups, the primary and the secondary, may conveniently be divided into two subdivisions, the early and the late. Early primary cases usually begin about adolescence. Late primary cases arise most commonly in women about the time of the menopause. Early secondary cases are those in which a simple diffuse colloid goitre of adolescence persists, and the toxic symptoms arise a few years later. Late secondary cases are those which are so commonly called toxic adenomatous goitre, where a simple nodular goitre with either one or many "adenomata" is present for many years before the onset of the toxic symptoms.

From a strictly pathological point of view any classification breaks down on the fact that microscopical sections will so often show areas of both hyperplasia and colloid adenomata in the same gland, and even inside the capsules of colloid adenomata we find areas of hyperplasia.

Histological Considerations

It is convenient at this stage to consider the various histological pictures and some of the problems that they suggest. To show the typical appearance of the primary toxic goitre it is necessary to go back to the material examined before the introduction of pre-operative iodine therapy (Fig. 2). We notice the almost complete absence of colloid storage, the resulting empty alveoli, and the columnar shape of the cells lining them.

The effect of the iodine is to increase the colloid storage (Fig. 3). Clinically it causes a pronounced remission of symptoms, shown by a drop in the pulse rate and the basal metabolic rate, with a rapid improvement in the nervous phenomena. This general improvement begins in two or three days, and reaches its maximum as a rule in from ten days to a fortnight. After that there is usually a definite though gradual tendency to relapse, whether the iodine is continued or stopped. If, as so often happens, iodine has been administered for months before, a remission cannot be obtained by its use unless it is discontinued for some weeks, and I believe that these later remissions are never so complete or so favourable as the first one, when the iodine is acting on virgin soil. These are the reasons why surgeons plead, too often as a voice crying in the wilderness, that iodine should be regarded, except in grave emergency such as maniacal attacks or severe vomiting, not as an agent for medical treatment, but merely as a temporary expedient to make operation safe. It is, of course, beyond question that the use of iodine has done far more than any other measure to bring down the operative mortality in toxic goitre.

I wish, in this connexion, to emphasize the inadvisability of the routine use of large doses of iodine as practised by some authorities. Adequate iodization of these patients can be assured by giving ten minims of Lugol's 5 per cent. iodine solution daily; the use of massive doses does involve danger of a severe exacerbation of the disease.

Significance of Colloid

The student is apt to think of the colloid secretion as the active principle of the thyroid gland. But when we see it as colloid the secretion is not in its active state but in a resting stage. It is stored up in the alveoli and inert, and has to undergo some change, the nature of which is unknown, before it can be reabsorbed by the alveolar cells and passed into the blood stream as active thyroxine. In the most active hyperplastic glands there is least colloid secretion visible. Such a gland contains less iodine than normal, while an excess of iodine is found in the blood and urine. The not inappropriate term thyroxine "diarrhoea" has been suggested for this condition.

A period of involution, during which the toxic symptoms become less evident, may coincide with an actual increase in the nodular swellings in the gland, and to this state we might give the term "constipation of thyroxine." It is to the active cellular hyperplasia that we must look for the main histological evidence of hyperthyroidism.

When we examine a series of sections taken from patients with toxic goitre we are at once perplexed by the variety of changes. In the same gland and often in a single section we find areas of hyperplasia, areas of involution and fibrosis, and so-called colloid adenomata. It is extremely difficult, if not impossible, particularly since the introduction of iodine therapy, to correlate the histological findings with the clinical symptoms.

Nature of So-called "Vacuoles"

I must draw attention to a very common appearance in the follicles of toxic goitre. We see in many sections a peculiar vacuolated appearance at the periphery of the alveoli between the colloid and the lining epithelium (Figs. 4 and 5). In contrast with the pink staining of the colloid these rounded areas are clear and colourless. Some authorities have regarded them as artefacts due to shrinkage of the colloid during fixation and staining, but Professor S. L. Baker, who has kindly prepared some special sections to investigate this point, assures me that they are certainly not artefacts. These "vacuoles," as he describes them, are considered by Boyd to be due to absorption of the colloid by the epithelial cells with which it is in contact. But if such absorption took place I think we should see merely a relative diminution of the colloid contents and a shrinking in size of the gland as a whole, and not a series of empty spaces.

It appears to me that they are not vacuoles at all, but droplets of recently poured out secretion which is in an active, non-staining state, and is no doubt capable of rapid absorption through the epithelial cells into the blood stream. I suggest that the emotional disturbance due to preparation for the operation may be in part the cause of this excessive secretion. It is not uncommon to observe a perceptible increase in the size and rotundity of the goitre on the morning of operation as compared with the preceding days. This pre-operative swelling of the gland was more noticeable before pre-operative iodine medication was introduced.

The interlobular fibrosis, which is a marked feature of the nodular goitres and of the old-standing cases of primary Graves's disease, is presumably developed in the various cycles of involution of the gland, and may be an attempt on the part of Nature to overcome the excessive vascularity that we see in the early primary toxic goitre. This fibrosis is responsible to a great extent for the peculiar hardness of an old-standing diffuse toxic goitre.

In some toxic goitres conglomerations of lymphocytes are a marked feature, and in many we see definite lymphoid follicles with typical germinal centres scattered throughout the gland (Fig. 6). Although a lymphadenoid goitre is often said to be associated with myxoedema all the specimens I have studied, and there are very many in my collection, have shown marked hyperthyroid symptoms. The function of this lymphoid tissue in toxic goitre is not in the least understood, and should be a fruitful subject for research.

Problem of Pathogenesis

Consider first this question. Are the various clinical phenomena of Graves's disease the result of an excessive output of a normal secretion—a true hyperthyroidism, or of the formation of an abnormal secretion—a dysthyroidism as it has been called? I am aware that there is a great weight of authority in favour of the theory of dysthyroidism. But there are certain considerations that seem to me to point strongly to the theory of a simple excess of the active principle. In the first place, as we have seen, the exact analysis of the thyroxine molecule by Harington, who has established its structural formula and has brought it to the proof of synthesis, makes it hard to conceive that the gland can have a secretion of variable composition.

We know, too, that the symptoms of Graves's disease can be induced by an excessive dosage of iodine or of thyroid extract—what is known on the Continent as "iodine Basedow's disease." I have seen several cases in which toxic symptoms were quite definitely due to the administration of thyroid extract in considerable doses to patients with simple goitre, under the mistaken belief that the goitres were an expression (as some undoubtedly are) of iodine or thyroxine insufficiency.

Then again, as we note the wonderful effect on the disease of the surgical removal of a sufficiently large proportion of the gland and see how too drastic a removal will cause, though rarely, post-operative myxoedema, it is difficult to resist the conviction that the disease is associated with a simple excess of thyroxine. The analogy of the other glands, such as the pituitary, the parathyroids, the islands of Langerhans, and the adrenals, points to the same conclusion, for we think of all their disorders as due to simple excess or deficiency of their internal secretion.

Whatever may prove to be the ultimate truth of the matter I feel that in the present state of our knowledge we confuse our thought unduly by entertaining the theory of perverted secretion, and I believe that the theory of excessive secretion provides a safer and better working hypothesis to explain the phenomena of toxic goitre.

Predisposing Causes

Age, sex, and heredity all play their part as predisposing causes. As regards age, early primary toxic goitre is essentially a disease of adolescence. It is not uncommon, however, to meet with it in a severe form in quite young girls, and I have had occasion to operate on several cases under the age of puberty, the youngest being 9 years of age. There is a late primary form, occurring, as it seems to me, with increasing frequency, which shows itself about the period of the menopause.

Early secondary toxic goitre—a relatively uncommon form—occurs a few years after the onset of a simple colloid goitre of adolescence, usually between the ages of 25 and 35. The commoner late secondary type is met with mostly after the age of 30, and often in quite elderly patients. Primary toxic goitre in men tends to arise notably later in life than in women, a fact no doubt connected with the greater immunity to the disease shown by the male. As regards sex, it is generally agreed that about ten cases occur in females to every one in the male. My own series contains approximately eight females to one male.

It is difficult to assess the importance of heredity as a predisposing factor, but in a large number of cases there is a history of other goitres in the family, either toxic or non-toxic, and one cannot resist the conclusion that many of these patients have an inherited instability of their nervous mechanism, or thyroid apparatus, or both. A case illustrating this point and brought to my notice by Dr. A. Hillyard Holmes was reported by Dr. Dreschfeld[1] in 1896.

> A female child, aged 2½ years, was startled by a large black dog. From that time she screamed and talked in her sleep and became very quiet and listless when awake. Soon after this her mother noticed emaciation and a heaving action of the heart, and she developed all the symptoms of primary exophthalmic goitre. She recovered spontaneously by the age of 7, grew up and married, and her daughter, at the age of 14, came under Dr. Holmes's care with exophthalmic goitre.

Exciting Causes

Given the hyperthyroid tendency there is still some exciting cause needed to produce the state of toxic goitre, and we find that this exciting cause very commonly takes one of two forms. It may be either emotional trauma or bacterial infection. Emotional trauma is undoubtedly the commonest exciting cause in primary toxic goitre. The large black dog of Dr. Dreschfeld's case is a typical instance. Let me mention some other examples. The sudden death of a near relative is a very common

precipitating event, as is the news of an accident to a relative. In one of my cases the doctor told a mother whose child was ill that he had no hope of the child's recovery. The child recovered, and the mother promptly developed Graves's disease.

Sexual offences or attempts at sexual offences against girls provide a not uncommon cause, particularly where the emotional disturbance of giving evidence in court is added. One patient said that her symptoms started with the news that her sister had had an illegitimate child. Sometimes the disease follows an operation, such as hysterectomy, appendicectomy, or complete removal of the teeth. Motor accidents provide a very frequent cause. One could elaborate the list almost indefinitely, but it is worth noting that in most of the cases I have mentioned the shock was a sudden one, and was not repeated.

Less commonly we find a history of the more prolonged emotional strain of a pregnancy, or of nursing a sick child or relative in a long illness, or in young girls the strain of working for examinations and failing in them. Examinations in music seem particularly prone to cause such troubles, but not examinations in medicine. An undue proportion of cases are found in school mistresses, theirs being an occupation that involves much nervous strain. In men it is the prolonged strain of business worries or anxiety about employment that causes trouble rather than any sudden shock, and it will be recalled that we did not see many cases among the shell-shocked during the war, though there were undoubtedly a few.

Among bacterial infections influenza comes easily first, and the epidemic of 1933 has been providing surgeons with thyroidectomies ever since; less common illnesses, but still not infrequent, are recurrent acute tonsillitis and acute rheumatism. All these infective conditions seem specially prone to produce toxic symptoms in patients with old-standing simple nodular goitres, though we occasionally see them producing primary Graves's disease.

Though diet has a proved and important place in the aetiology of simple goitre, there is little evidence that it counts greatly in toxic goitre. Dr. Kletz and others have stressed the importance of a diet rich in carbohydrates in pre-operative treatment, in order to restore the depleted reserves of glycogen in the liver.

Pituitary Relationships

To enumerate the exciting causes of the disease plainly brings us no intellectual satisfaction. We must inquire how they act. I fear that in the present state of our knowledge we can only inquire and wait patiently for the final answer. What is the part played by the central nervous system, by the sympathetic nervous system, or by the pituitary gland in the causation of the disease? It is plain that the experimental physiologists have the task of answering these more fundamental questions, and it is to the results of their labours that we must turn.

Let us first consider the evidence of a close relationship between the pituitary and the thyroid gland. It has been established experimentally in a number of animals that extirpation of the pituitary leads to some degree of atrophy of the thyroid, and, conversely, that continued injection of anterior lobe extracts of the pituitary causes hyperplasia of the thyroid. It is also known that thyroidectomy in animals causes hypertrophy of the anterior lobe of the pituitary.

Some interesting experiments have been recorded by Schockaert[2] on the duck. He found that daily injection of bovine anterior pituitary extract into young male ducks caused hypertrophy of the testes and increase in the size of the thyroid. After three weeks the thyroid reached thirty times the size of normal control glands; and histologically the gland developed features closely resembling primary toxic goitre. When the injections had continued for more than three weeks the birds showed exophthalmos, loss of down, and increase in the weight of the heart. These effects are attributable to the thyrotropic hormone which has been insolated from the anterior pituitary.

Thyrotropic Pituitary Hormone

Collip and Anderson,[3] working with this thyrotropic hormone, have shown recently that daily injections into rats cause hyperplasia of the thyroid with an increased basal metabolic rate. This effect did not persist, however, and after the thirty-seventh day the basal metabolic rate was greatly below the normal, and lower even than that of hypophysectomized rats. When the serum of these rats, which had been thus rendered immune or resistant to the hormone, was injected into hypophysectomized rats, these latter animals were found to show none of the hyperplastic thyroid reaction or increased basal metabolic rate which the thyrotropic hormone normally induces in them. Similar results were obtained in the guinea-pig. Collip suggests that this opens up the possibility of a serum treatment of hyperthyroidism.

Marine[4] has shown that the thyrotropic hormone is independent of nerve impulses, since it stimulates thyroid transplants in any part of the body to approximately the same degree that the non-transplanted thyroid is stimulated. Recently Eitel, Krebs, and Loeser[5] have shown that the thyrotropic hormone stimulates thyroid cells *in vitro*.

While the great importance of the thyrotropic hormone of the anterior lobe of the pituitary as a cause of thyroid hyperplasia has received increasing attention of late, there is some evidence that the thyroid may be stimulated to over-activity by a purely nervous mechanism, and this work has hardly received the attention it deserves. In 1915 Cannon, Binger, and Fitz[6] showed that in cats suture of the proximal end of the divided phrenic nerve to the distal end of the cervical sympathetic produced exophthalmos, increased basal metabolic rate, diarrhoea, and an irregular pulse—all the essential phenomena, in fact, of hyperthyroidism. This ingenious experiment, though proving beyond doubt that the thyroid secretion is to some extent under the control of the sympathetic nervous system, cannot be said to solve the riddle of toxic goitre, for there is no reason to believe that a continuous rhythmical discharge of stimuli, such as this phrenic anastomosis provides, ever passes down the sympathetic nerves to the thyroid in cases of toxic goitre in man.

Hypothalamic Relationships

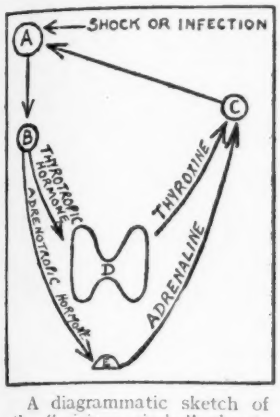
The fundamental problem of toxic goitre seems to me to be this: How are we to explain the mechanism by which a transient emotional shock, or a brief bacterial invasion, sets up a state of hyperactivity in the thyroid which often lasts for years? Some kind of vicious circle must be postulated in the mechanism that brings this about—but what? It is here that experimental work on the hypothalamus brings us an uncertain glimmer of light.

The condition of "sham rage" manifested by the decorticated dog in Goltz's classical experiment has been investigated by Bard,[7] and the reactions constituting this condition have been proved to depend on a centre in the hypothalamus. This state of "sham rage" is associated with raised blood pressure, increase in blood sugar, sweating, and outpouring of adrenaline. This, however, is only a part of the evidence which tells us that there is in this region of the brain a higher centre for the sympathetic system. Recent research has shown that this small area of brain under the third ventricle controls the primary emotions, or perhaps we should say the expression of those emotions, the metabolic processes of the body, and the

sympathetic nervous system. It is also, as Cushing has shown, in very close relationship with the pituitary body. The hypothalamus, according to Cushing, by its close neural connexion with the pituitary, is capable of stimulating that organ to activity through the agency of nerve fibres running down the pituitary stalk. We must not yet regard this hypothalamus-pituitary relationship as certainly proved, but it is a theory which grows in probability with increasing knowledge, and Langdon-Brown[8] has recently summarized the growing evidence in its favour.

A Theory of Pathogenesis

Let me be bold enough to attempt a theory of the pathogenesis of toxic goitre. I would suggest that an emotional trauma, or bacterial infection acting on a hypothalamus that is rendered peculiarly susceptible by hereditary and possibly by dietetic influences, stimulates that hypothalamus to over-activity. The hypothalamus in its turn stimulates the pituitary by nervous pathways. From the anterior lobe of the pituitary the thyrotropic hormone is poured out in excess, and doubtless the adrenotropic hormone also, and, passing through the circulation, initiates a process of active hyperplasia in the thyroid. Thyroxine normal in quality and excessive in quantity is poured out into the blood, and produces its symptoms by some action on the sympathetic system.



A diagrammatic sketch of the "vicious circle" theory of toxic goitre. A = Hypothalamus. B = Pituitary. C = Sympathetic system. D = Thyroid. E = Adrenals.

Whether the thyroxine acts centrally on the sympathetic centre in the hypothalamus, or peripherally on the sympathetic nerve terminals, or both, seems quite uncertain, though the occasional occurrence of acute mania in toxic goitre and the constant emotional instability of these patients provide suggestive evidence of an action on the centres in the hypothalamus. But it would appear quite plain that all the cardinal symptoms of the disease—exophthalmos, tachycardia, sweating, tremors, and the increased basal metabolism—are due to the over-stimulation by thyroxine of the sympathetic system. In this over-stimulation adrenaline would seem to play an essential part, and it may be that there is a closer connexion than has hitherto been believed between the thyrotropic and the adenotropic hormone of the pituitary. This theory has the merit of suggesting how an initial emotional shock or bacterial infection may set up a vicious circle of nervous and endocrine disturbances which keeps the disease in activity, and which it is the object of treatment to break.

Exophthalmos

Some recent experimental work suggests that while thyroxine alone is unable to produce exophthalmos in animals it can do so when given in combination with drugs, such as adrenaline or ephedrine, which are themselves capable of stimulating the sympathetic system.[8] Further it has been shown that this experimental exophthalmos is produced with greater ease after thyroidectomy[9]—a fact which suggests that the thyrotropic and/or the adrenotropic hormone of the pituitary may be of greater importance in its production than thyroxine itself.

I must here elaborate my reasons for including exophthalmos among the results of sympathetic stimulation. The exophthalmos has been attributed by some, including no less an authority than Dr. G. R. Murray, to increased intra-orbital fat, but the post-mortem evidence for this theory has never been convincing, and it seems improbable that a wasting disease could cause such a local excess of fat.

There are, however, certain arguments that point directly to a muscular origin of the exophthalmos. It will sometimes, though rarely, develop in a few hours after a sudden shock. This could only happen by a neuro-muscular mechanism. Further, the opposite condition, enophthalmos, is caused, as we all know, by division of the cervical sympathetic—a lesion that we often saw during the war, and now produce deliberately when we do a cervical sympathectomy. This paralytic enophthalmos is convincing evidence that the position of the eyeball in the bony orbit is dependent on muscular tone.

Jaboulay's operation of division of the cervical sympathetic in the neck has long become obsolete as a means of treating Graves's disease because it does nothing to reduce the basal metabolic rate and other constitutional symptoms, but it still has some value in the rare cases with exophthalmos so extreme as to threaten ulceration of the cornea.

If we conclude, as I think we must, that the exophthalmos is due to a muscular mechanism innervated by the cervical sympathetic, we must next attempt to indicate the precise muscles involved. Without stopping to consider the various muscles which have been held responsible, I must briefly state my own view. The check ligaments are arranged in continuity with the capsule of Tenon. The check ligaments, as Sappey showed long ago, are chiefly composed of smooth muscle fibres, and the capsule of Tenon, though largely fibrous, can be shown by differential staining to contain a considerable proportion of smooth muscle. These structures, the check ligaments and the capsule of Tenon, combine to form a sort of catapult, which when it contracts projects the eyeball forward. The retraction of the upper lid, which is a separate phenomenon from the exophthalmos, can be explained by stimulation of the smooth muscle element in the levator palpebrae superioris.

If I am asked why it is that exophthalmos, after a successful operation for Graves's disease, so often persists when all other symptoms have vanished, I should attribute it to the organic shortening which this muscular sling, like any other muscle in prolonged spasm, has undergone.

Clinical Problems

It would be wrong to leave this imperfect attempt to elucidate the mechanism of exophthalmos without admitting that the view I have attempted to set forth is still largely hypothetical, and further investigations may well lead to some modification of it. No theory of exophthalmos can be regarded as entirely satisfactory when it fails to account for the occasional occurrence of a strictly unilateral exophthalmos in toxic goitre. The explanation of this phenomenon remains a complete mystery.

There are two clinical problems connected with toxic goitre to which I can refer only briefly. A considerable proportion of these patients, and particularly the older ones, develop some degree of chronic arthritis which they describe as "rheumatism." The arthritis usually begins before operation, and sometimes continues unchecked or even becomes worse after operation. The second problem is that many of them suffer from a type of abdominal pain that sometimes simulates the pain of peptic ulcer. I believe that both these conditions offer a promising

field for systematic clinical research, but it is unlikely that we shall arrive at a satisfactory understanding of them until more is known concerning the influence of the sympathetic system upon the joints and upon the mechanism of visceral pain.

Conclusion

I am conscious that these remarks have raised various problems and have done little to solve them, but it is perhaps well that we should realize what gaps still remain in our knowledge of this most fascinating disease. On the question of operative treatment, with which I have not attempted to deal, it would be unwise to assume that we have reached finality. Although the surgical treatment of toxic goitre can at present claim such results that it is regarded as the method of choice for all save the mildest cases, I never do a subtotal thyroidectomy without feeling what a crude and imperfect method it is. Who can doubt that before many years have passed the biochemist will place some weapon in the physician's hand that will enable him to break the vicious circle of toxic goitre as certainly as the surgeon can, and without any of the risk which we cannot, try as we may, altogether eliminate from these anxious and delicate operations.

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DIAGNOSIS OF PHYSICAL DISORDERS IN THE INSANE

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The well-recognized fact that psychotic patients may suffer from serious organic disease without uttering a word of complaint by no means constitutes the chief difficulty in the diagnosis of physical disease in the insane. As Hall[1] has pointed out, physical signs may be few, or even absent, in grave medical or surgical conditions which in the mentally normal give rise to unmistakable clinical pictures. If this be true in such common disorders as appendicitis and gastric ulcer, to take only two examples, it is unlikely that rare diseases will be diagnosed in the insane during life, especially as the use of accessory methods of investigation may not be possible owing to lack of co-operation or active resistance of the patient, and even a complete physical examination may have to be abandoned.

During the past year four patients came under observation at this hospital in whom the physical diagnosis was doubtful. As the conditions revealed at necropsy were somewhat unusual these cases were considered of sufficient interest to record.

Case I

A man aged 82 had been insane since 1888. He was transferred to this hospital in 1929 in a state of secondary dementia. He then had arterial and myocardial degeneration, but there were no signs of active heart disease. For the last two years of his life he had been bed-ridden and so demented that he was unable to notice any change in his physical well-being. The terminal illness began on July 15th, 1934, with a rigor, which was followed by high fever. The heart sounds became almost inaudible, and crepitations appeared at the bases of the lungs. He gradually became unconscious, and died on July 20th without developing any further signs. There was, however, some diminution in the quantity of urine passed during the last few days of life. Examination of the urine the day before death showed a large amount of albumin, many granular casts, a few pus cells, and many coliform bacilli.

A necropsy was performed on the day of death, when it was found that the heart was enlarged, weighing 14 oz. The muscle was red and firm, and the left ventricle was hypertrophied. On the left cusp of the aortic valve there was a mass of vegetations about the size of a sixpence. This mass was reddish in colour, and, though not easily friable, neither was it hard and fibrotic. It ulcerated the margin of the valve. No other vegetations were present. There was only slight atheroma of the cusps of the aortic and mitral valves and of the proximal part of the thoracic aorta. The coronary arteries were patent throughout.

Both kidneys presented a "flea-bitten" appearance, due to multiple petechial haemorrhages scattered over their surfaces. On section many more tiny haemorrhages were seen in the cortex. In the centre of some of these were tiny white spots which exuded pus on pressure. The cortex of both kidneys was greatly diminished, and the cortical markings were indistinct. In the right lung many alveoli were dilated, giving a bullous appearance. On section a little clear, frothy fluid was expressed. The left lung was well aerated throughout. The brain and spinal cord were normal to naked-eye examination, and nothing abnormal was noted in the other organs, except in the spleen, which was unduly soft and friable. No infective focus other than the vegetation on the aortic valve could be traced.

Microscopical examination revealed an area of acute inflammation in this vegetation, in which polymorphonuclear leucocytes and diplococci could be seen. Miliary abscesses, also of recent origin, were present in the cortex of both kidneys. During routine examination of sections of the brain many miliary abscesses were found around the vessels in the cerebral cortex, both in the grey and in the white matter (Fig. 1 on Special Plate).

The unusual features of this case were the age of the patient, the absence of signs of active pre-existing heart disease, and the short duration of the terminal illness. It is probable that the endocarditis was due to a pneumococcal infection, since this form of bacterial endocarditis is more common in later adult life, is very rapidly fatal, and, according to Thayer,[2] in only 37.5 per cent. of cases is there a history of pre-existing heart disease. Focal areas of suppuration, such as we found, are common in pneumococcal endocarditis—Thayer found them in 72 per cent. of his cases—while they are rare in any other form.

Case II

A man aged 74 was admitted on December 5th, 1934, in a condition of arteriopathic dementia. He had advanced generalized arteriosclerosis. His blood pressure was 180/122. The urine contained a trace of albumin but no casts, while the blood urea was 85 mg. per cent. He had incontinence of urine, not suggestive of retention overflow, but attributable to his mental state. There was a constant purulent nasal discharge, which on examination was found to be due to large nasal polypi. An operation for their removal was considered necessary in spite of his poor physical state, and this was performed on December 20th under sodium evipan anaes-

thesia. The only difficulty experienced during the operation was the customary free haemorrhage associated with this operation. This was readily controlled by nasal plugging. The patient began to rally after operation, but he never fully regained consciousness, and died twelve hours later in a condition strongly suggestive of uraemia.

A post-mortem was carried out on the day of death. The site of operation was clean except for a small amount of blood clot. The trachea and bronchi contained a little blood-stained frothy mucus. The lungs were somewhat congested, and on the left side there were old adhesions between the pleura and the chest wall. The heart was enlarged, weighing 15 oz., and the left ventricle was hypertrophied. There was slight atheroma of the thoracic aorta and intense atheroma of the abdominal aorta, where numerous calcified plaques, spreading into the common iliac arteries, were noted. The liver was slightly pale, but otherwise appeared normal.

In place of the kidneys we found two thin-walled sacs, each containing a large quantity of clear, uninfected urine (Fig. 2). On the right side there was no trace whatever of kidney tissue ; on the left side a small amount of recognizable kidney substance was present at the upper pole. The right ureter was greatly dilated at its origin, and the muscular coat was hypertrophied throughout its length. The left ureter was less hypertrophied. Both were patent. The bladder was sacculated, stretched, and thinned ; in several places its wall appeared to consist of epithelial and peritoneal coats only. It was greatly distended with urine. No obstruction could be found distal to the bladder. There was no stricture, and no evidence of previous obstruction. The prostate was normal in size and consistency. The other viscera appeared healthy.

The arteries of the brain were grossly atheromatous and of "pipe stem" consistency. In the brain several small recent softenings were present in the anterior part of the right thalamus, and two older ones were seen in the white matter of the right lateral lobe of the cerebellum. In microscopical sections of the remaining kidney tissue the majority of the glomeruli were found to be completely sclerosed, being represented by knots of fibrous tissue. The walls of the renal vessels were also fibrotic and their lumina narrowed.

The necropsy in this case raised two problems: the first, why the patient had lived so long, in fair physical health, and presenting no signs of renal failure, with only a trace of kidney tissue ; the second, the cause of the bilateral hydronephrosis. We were unable to solve either.

Case III

A woman, aged 58 years, was admitted on October 26th, 1934. Her mental illness had commenced on September 27th, two days after the death of her husband. The first symptoms of mental trouble were amnesia and loss of appetite. Her mental illness progressed rapidly to a state of acute confusional insanity. Pyrexia was absent until shortly before admission.

When examined on admission she was delirious, with a temperature of 101°, a pulse rate of 104, and a respiratory rate of 26 per minute. There was much wasting of recent onset, a high colour, and sweating. A blood count showed 11,700 leucocytes per c.mm., with 80 per cent. of polymorphonuclears. She was obviously very ill, yet physical signs were few. The chest showed two or three small patches of consolidation of the lungs. The heart was normal. There was a certain amount of rigidity of the upper recti abdominis, and deep pressure here caused flinching, but the signs were no more than those often met with in pneumonia. The liver was not palpable, and the abdomen was otherwise normal. The lower abdominal muscles were flaccid, and moved normally.

During the next week her condition rapidly deteriorated. She ran a temperature varying from 100° in the morning to 102° in the evening. The pulse rate remained just over 100, and the respiratory rate rose to between 60 and 70. The physical signs in the chest became less evident and no further signs appeared in the abdomen or elsewhere. Frequent blood counts did not show an increasing leucocytosis, the total leucocyte count remaining at about 11,000 per c.mm., and the polymorphonuclears ranging from 69 to 79 per cent. The sputum was negative for tubercle bacilli and did not show a preponderance of any particular organism.

The only possible diagnosis was bronchopneumonia, in spite of the paucity of signs in the chest. The temperature rose rapidly to 105° just before death, which occurred on the evening of October 22nd.

A post-mortem was performed on October 23rd, and only slight pulmonary lesions were found. Although partial consolidation of the lungs had taken place portions from all parts floated in water. Small beads of pus were expressed from the lower lobes.

On opening the abdominal cavity several small yellow protuberances, each about the size of a cherry, were seen on the surface of the liver. On incising these yellow pus poured out. Further incisions into the liver disclosed an organ riddled with pus-containing cavities. Pus was collected with sterile precautions from one of the abscesses, and stained smears of this showed a short-chained streptococcus. Cultures produced a diplococcus and a staphylococcus, the latter probably a contaminant. The portal vein was found to contain pure pus, which was traced backwards to the small tributaries of the vein. The appendix was normal on naked-eye examination and on microscopy. Dissection of the rectum revealed a number of piles, which were excised for section. The other organs did not present any abnormalities other than those associated with prolonged pyrexia.

Microscopically the cause of the portal pyæmia was demonstrable in one of the piles. This had thrombosed, and in it evidence of recent inflammatory changes was found, there being numerous polymorphonuclear leucocytes amid the thrombosed veins and newly formed fibrous tissue.

In this case a woman aged 58 died following symptoms of bronchopneumonia. At the necropsy an unexpected finding was an extensive portal pyaemia, which had originated in a thrombosed pile and had produced very large coalescent abscesses in the liver. Careful subsequent questioning of the relatives disclosed the fact that the patient had had an "attack of piles" several months previously, but none since. A history of an illness two months before admission described as "gall-bladder trouble" was also obtained.

Case IV

A man, 49 years old, was admitted on July 7th, 1935, as a case of mental confusion, due possibly to cerebral arteriosclerosis. The history of his illness was vague. There was no history of previous mental or physical illness, except that following an attack of influenza in March, 1934, he had had a succession of "chills" and colds, with progressive loss of weight and weakness. About a month before admission he had complained of headache and depression. A week before admission he became mentally confused and actively resistive to all attention.

On admission the patient was in a state of complete physical prostration with advanced cachexia, and in low muttering delirium. His temperature was 96°, his pulse rate 78, and his respiratory rate 18. His mouth was septic. The heart was dilated, with a diffuse apex beat outside the mid-clavicular line. The blood pressure was 108/78. The radial arteries were sclerotic. So far as could be ascertained there was no gross pulmonary lesion. There were basal crepitations in both lungs, and scattered crepitations with harsh broncho-vesicular sounds were heard all over the right lung. Percussion of both lungs gave a hyper-resonant note. Any attempt to turn the patient on to either side produced acute dyspnoea, whilst *x*-ray examination was impossible.

A neurological examination was negative ; the optic disks could not be examined owing to lack of co-operation on the part of the patient. Abdominal examination was negative. The urine showed a trace of albumin and 0.83 per cent. of sugar. A blood sugar estimation two hours after a meal was 87 mg. per cent. A blood count gave the following result: red blood cells, 3,648,000 per c.mm. ; haemoglobin, 72.2 per cent. ; colour index, 1 ; white blood cells, 8,300 per c.mm. ; polymorphonuclears, 67 per cent. ; large lymphocytes, 11 per cent. ; small lymphocytes, 17.5 per cent. ; and monocytes,

4 per cent. There was very slight anisocytosis and poikilocytosis.

During the remainder of his life there was some decrease in the patient's delirium. He was able to understand what was said to him, but was incapable of reply beyond a hoarse whisper of "Yes" or "No." He was free from headache whilst in hospital. There was persistent incontinence of urine and faeces. The temperature remained subnormal, and the pulse rate did not rise above 80 beats per minute. No further physical signs were elicited until July 13th, when the patient developed oedema of the right lung. The temperature rose to 99.8°, the pulse rate increased to 120, and the respiratory rate to 40. Oedema of the left lung ensued, and proved fatal on July 15th. A tentative diagnosis of pulmonary tuberculosis with cerebral metastasis was made.

A post-mortem examination was made on the day of death. On opening the thoracic cavity a soft mass about the size of a chestnut was found lying on the pleural surface of the fourth rib on the left side, close to the vertebral column. Incision of this mass yielded a yellow, semi-fluid material, some of which was collected for microscopy. The incision divided the whole thickness of the rib very easily, the growth having involved both surfaces as well as the marrow cavity. No other ribs were affected and the vertebral column appeared normal. The upper lobe of the right lung was occupied by a large tumour, the centre of which was necrotic. Other miliary foci were scattered throughout the middle and lower lobes of this lung. The glands at the hilum were not enlarged and the main bronchi were free from growth. The left lung was oedematous, particularly in the lower lobe, but did not contain any tumour tissue.

The heart was slightly enlarged, weighing 12 oz. The heart muscle was pale and flabby; the pericardium was normal. Patchy atheroma was present on the mitral and aortic valves. The peritoneum, stomach, liver, gall-bladder, spleen, and suprarenals appeared healthy on naked-eye examination. The right kidney contained two small white tumour masses, each about the size of a cherry, which projected above the surface. These masses, unlike the growth in the lung, were firm to the touch. The left kidney contained two similar tumours, although these were situated deep in the cortex, and were only found on section. Apart from the presence of these tumours both kidneys appeared healthy. There was no oedema round the tumours.

The brain was oedematous, and the convolutions were flattened as a result of increased intracranial pressure. The cisterna basalis and the ventricles contained an excess of cerebro-spinal fluid. No other abnormalities were detected on naked-eye examination and section of the cerebral hemispheres, but in the left lateral lobe of the cerebellum there was a soft whitish tumour mass, not sharply demarcated from the surrounding brain tissue, which was grossly oedematous. After fixation it was seen that the tumour had invaded most of the left lateral lobe. The pons, medulla, and cervical portions of the spinal cord appeared normal.

Microscopical examination of smears taken from the necrotic material in the rib rendered it possible to differentiate large malignant cells from the cells of the bone marrow. Sections of the primary growth in the lung showed carcinoma cells arranged in solid trabeculae. The cells varied in shape and size; some were large and columnar, others were small and cubical. The nuclei were large and vesicular, and in many mitotic figures were visible. In some parts of the section tall columnar cells were grouped round a central blood vessel, with their long axes at right angles to the vessel wall. This arrangement was much more evident in the metastases in the brain and kidney, where also a greater variation in the size and shape of the cells was seen than in the primary tumour.

The absence of symptoms and signs referable to the chest is noteworthy in this case, although it is not very uncommon for the first symptoms of cancer of the lung to be due to metastatic deposits in the brain, as in the series reported by Ferguson and Rees.[3] What was more remarkable in this case was the complete absence of any symptom or sign suggesting the presence of a cerebellar tumour. From the situation of the tumour in the cerebellum and the oedema of the adjacent brain tissue, as well as from the greatly increased intracranial pressure, localizing signs of a subtentorial tumour and the general symptoms and signs of high intracranial pressure would certainly have been expected.

It is regretted that an ophthalmoscopic examination which would have revealed papilloedema could not be made owing to lack of co-operation of the patient, and also that an *x*-ray examination which would have enabled us to diagnose the growth in the lung could not be undertaken, as the patient was at no time well enough to be moved. In view of the impossibility of making these two examinations, and the absence of signs and symptoms, it is difficult to see how the diagnosis could have been made ante mortem.

Summary

Four cases are presented which exemplify a few of the difficulties besetting the diagnosis of physical diseases in the insane.

In one of these, a patient with extensive bilateral hydronephrosis, the disease was latent, and had it not been for an operation which enforced extra work on the kidneys, the patient might have continued to enjoy fairly good physical health in spite of the minute amount of kidney tissue he possessed. This case was a good illustration of the only recently appreciated fact that a very small number of functioning glomeruli suffice to maintain renal efficiency.

Another case was remarkable for the occurrence of acute bacterial endocarditis in a man aged 82, whose fatal illness ended within a week of the appearance of the first signs. The virulence of the infecting organism was such that miliary embolic abscesses were present in the brain and kidneys.

The third case was one of portal pyaemia resulting from infected haemorrhoids. As Hurst says[4] "portal pyaemia is rarely diagnosed" we were not unduly depressed at our failure to recognize the condition, and we record the case as an instance of a rare complication of haemorrhoids.

In the last case a correct diagnosis could have been made in spite of the remarkable absence of symptoms and signs had the patient been well enough to permit of an *x*-ray examination, or co-operative enough to allow the use of an ophthalmoscope. This case illustrates the paramount importance of making a complete examination by every available means in a mental patient suspected of an organic lesion.

We wish to thank Dr. D. F. Rambaut, medical superintendent of St. Andrew's Hospital, for permission to publish these cases. The photographs were taken by Mr. E. Tranmer, to whom we are greatly obliged.

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The annual national training camp for the Women's Voluntary Aid Detachments of the British Red Cross Society will again be held this year at Northwood Park, near Winchester. Between May 15th and June 9th it is expected that some 700 officers and members will attend for one or more weeks of intensive training in first aid, defence against chemical warfare, infant welfare or hygiene, and sanitation. For many the period in camp will constitute their annual "holiday," since the personnel of the detachments is largely drawn from the ranks of business and professional women.

MENTAL DISORDER ASSOCIATED WITH CHILD-BEARING

BY

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There have been admitted to West Park Mental Hospital during the four years 1931 to 1934 forty-five cases of mental disorder associated with child-bearing. The present paper is based on an analysis of these cases.

One was an example of pregnancy occurring in a young woman who had for over a year prior to becoming pregnant shown increasingly well-marked signs of schizophrenia. In her case the last three months of pregnancy and parturition appeared to accelerate the progress of the psychosis. Since the child was born three years have elapsed; her psychosis has continued to develop, but in a more leisurely manner.

In seven cases there was a history of one or more previous attacks of mental disorder which had not been associated with child-bearing. In these child-bearing had apparently acted as the exciting cause for a subsequent breakdown where other factors had been responsible in the one or more previous attacks. In four of these cases the previous attacks were not sufficiently severe to make treatment in a mental hospital necessary, but in the other three certification was required.

Of the seven patients four recovered, two are still in hospital without showing any signs of commencing recovery, and one was discharged somewhat improved after her illness had already lasted for eighteen months. In all the duration of the mental illness associated with child-bearing was greater than the duration of the previous attacks, which were not associated with this cause. Thus the average duration in the four patients who recovered was twelve months in the illness associated with child-bearing compared with three months in the attacks not associated with child-bearing. In the two who have not recovered the present illness has lasted for four years in one case and sixteen months in the other, as against a few weeks and a few days respectively in the previous attack. The patient who was discharged improved could not be traced, and hence it is not known whether or not she ultimately recovered. She had, as already stated, been ill for eighteen months when she left hospital, and in both her previous attacks her illness had lasted only three months.

There were in this series thirty-seven patients in whom the present mental illness was the first the patient had had, and in whom child-bearing appeared to be in whole or in most part the cause of the breakdown. It is to these cases that the rest of this paper refers.

It has long been recognized that no special form of mental disorder is associated with child-bearing. In this series of thirty-seven patients who had not had a previous mental breakdown the cases fell into three groups: manic-depressive; delirious (acute confusional); and schizophrenic. It is proposed to deal first of all with each of these three groups separately before returning to a consideration of the cases as a whole.

The Manic-depressive Group

This group consisted of fifteen cases; of these, twelve were depressed, two excited, and one varied between depression and excitement.

The depressed cases had a high recovery rate, ten out of the twelve. The duration of the illnesses of those patients who recovered ranged from two to thirty-three months, the average being just under one year. Five recovered in six months or under, and the other five were ill from eleven to thirty-three months.

The two who have not recovered have been ill for more than two and three years respectively. One of them improved to a certain extent and then became stationary, while the other has shown no improvement at all. The ages ranged from 18 to 39 years, the average being 32 for those who recovered and 33 for the others who are still ill. Two of the ten recovered patients were primiparae; the other eight were multiparae, and in these the pregnancies involved ranged from the second to the eighth. Both the patients who did not recover were multiparae, and the pregnancies were the third and fourth.

In regard to the aetiology in addition to the child-bearing, which must be considered the main cause of the breakdown, there were additional causal factors in most of the cases. In the ten cases of recovery there were two patients who showed a definite degree of congenital mental defect, necessitating in one case attendance at a special school when a child. Physical debility as the result of overwork or underfeeding or definite illness, either singly or in combination, was present in three cases. In one instance the patient was single and the child not wanted; in another there was unhappiness over the husband's infidelity, and here also the child was not desired. In three of the patients who recovered no factor in addition to child-bearing could be discovered. Both the patients who did not recover had additional aetiological factors, in one case worry over a son's illness and an unwanted child, and in the other a toxaemia due to breast abscess.

The time of onset of the psychosis in the recovered depressed cases ranged from the fifth month of pregnancy to two months after parturition. In the patients who did not recover, the symptoms first appeared twelve days after parturition in the one case and twenty-one days afterwards in the other. In three of the ten patients who recovered the onset was sudden, while in seven it was gradual. In both of those who failed to recover the onset was gradual.

The manic or excited group comprised two cases; in both recovery ensued in from three to four months. The ages of the patients were 21 and 27 years; one was a primipara, the other a multipara. In one there was no additional factor, but in the other worry and underfeeding as the result of financial difficulties were present. In both cases the mental symptoms first appeared after the birth of the child—in one case the day afterwards, and in the other twelve days afterwards—and in both the onset was sudden. One patient was at first depressed, but later became excited. She recovered in twenty-three months. She was a 31 years old multipara, and an additional aetiological factor was the fact that the pregnancy followed extramarital intercourse. The mental symptoms occurred suddenly, immediately after a self-induced abortion at the third month.

The Delirious Group

The delirious (acute confusional) group consisted of eight patients, six of whom recovered; one is still ill, and one died from pulmonary tuberculosis. The six patients recovered in from three to six and a half months, the average being five months. The ages of the patients in this group ranged from 17 to 30 years, the average age of those who recovered being just under 25 years, while the one who is still ill is 30. Those who recovered were all primiparae, and the other one was a multipara.

As regards aetiological factors, in only one of them was there definite evidence of a toxic focus; the patient had a large carbuncle and was running a high temperature.

In the other five who recovered there was a family history of mental disorder in one ; in one the patient was single, and her fiancé had disappeared ; and in one there was a definite degree of congenital mental defect. In the two remaining cases the mental symptoms followed cessation of breast-feeding ; one patient was of an unstable personality, and stopped feeding the child when it was eight months old ; the other had money difficulties, and the milk stopped some seven days after parturition. In the patient who is still ill there was no obvious toxic focus, and no additional aetiological factor was discovered.

It has been suggested that there are two distinct types of case in the delirious group—the toxic and the non-toxic—and that these two types differ in a number of respects. In the non-toxic group the heredity is bad, the make-up unstable, environmental stress is present, the pregnancy is the first, and no toxic focus is found ; whereas in each of these respects the exact opposite is found in the other group. In the present series of cases the six non-toxic cases did not entirely fit in with this differentiation. As regards the pregnancy involved they corresponded fairly closely, since five out of the six were primiparae ; a bad heredity was found in only one ; an unstable make-up in two ; environmental stress was present in only one ; but in all six no evidence of any toxic focus was discovered. The one case which belonged to the toxic group fitted in well, since the family history was good, the make-up stable, environmental stress was absent, and a well-defined toxic focus was evident.

The onset of the mental illness occurred within the first ten days after parturition in six cases ; in the remaining one the onset occurred some eight months afterwards, and coincided with the cessation of breast-feeding. The mode of onset was sudden in four cases, including that of the patient who did not recover, and was gradual in the remaining three cases.

The Schizophrenic Group

This group consisted of fourteen patients, of whom seven recovered ; six are still ill, and one died as the result of a suicidal attempt. The duration of the illness in the seven who recovered ranged from five to thirty months, one recovering in five months, four in seven months, and the other two in twenty-one and thirty months respectively. The ages ranged from 23 to 40 years, the average for the recovered cases being 28 years and for those who did not recover 30 years. Eight patients were primiparae, and four recovered ; of the six multiparae half recovered.

With regard to aetiological factors, in the seven cases of recovery there was a psychopathic family history in two, and in one of these, as well as in two other cases, there was present a definite degree of congenital mental deficiency, necessitating education at a special school in one instance. In one of the cases with a psychopathic heredity there was evidence of a schizoid tendency in the pre-psychotic personality, and in this case, in addition, an abscess of the breast developed.

In one case, where the psychosis followed a self-induced abortion at the third month, the pregnancy had resulted from extramarital intercourse. In one case worry (because the patient's parents refused to receive her husband) was a factor, while financial stress played a part in one of the congenitally deficient cases. No additional factor could be discovered in one case. Of the seven patients who did not recover two were single, and there was no likelihood of marriage, while in a third pregnancy had followed intercourse with a man other than her fiancé, but the latter married her. In two cases there was a psychopathic family history, and in addition in one case the husband was unfaithful, while in the other there were financial difficulties. In one case there was a certain amount of congenital mental deficiency, while in the remaining case no additional factor could be found.

The times of onset of the mental symptoms in the schizophrenic cases ranged from the third month of pregnancy to two months after parturition. Two cases occurred at the third month of pregnancy, and two at the eighth month ; one of each couple recovered. Seven cases occurred within the first fourteen days after parturition, and two of these patients recovered. One case occurred four weeks and two began eight weeks after parturition ; all three recovered. In six patients the onset was sudden, and three of them recovered. In eight the onset was gradual, and four made a good recovery.

It is now proposed to return to the consideration of the thirty-five cases more as a whole and to study them especially from the point of view of prognosis. The two patients who died will not be included.

Time of Onset of the Psychosis

Of the thirty-five cases five patients first showed symptoms during pregnancy, some as early as the fourth month, others as late as the eighth. In three instances the symptoms appeared immediately after the occurrence of a miscarriage, two at the third month and the third at the sixth month. The two miscarriages at the third month were self-induced, the one at the sixth month was accidental. Of the remaining twenty-seven cases, in ten the mental symptoms appeared within a week of the birth of the child ; in nine the symptoms appeared in the second week after the birth ; in four the symptoms appeared in the third and fourth weeks ; and in the remaining four the time of onset ranged from the second to the eighth month after parturition.

From the standpoint of outcome, three of the five patients in whom mental disorder commenced during pregnancy have recovered and two are still ill. All three in whom the symptoms followed miscarriages recovered. Nine of the ten patients in whom the psychosis appeared within a week of the birth recovered and one did not. Of the nine in whom the symptoms appeared in the second week after the birth, five recovered and four are still ill. Of the four in whom the psychosis first appeared in the third and fourth weeks after parturition only half recovered. In the remaining four cases in which the symptoms were first noticed between the second and eight months after parturition all the patients recovered. From these data it is not possible to generalize, but it would appear that patients who develop mental symptoms within the first week after parturition are likely to recover.

Mode of Onset of the Psychosis

In discussing the mode of onset of the psychosis it has to be borne in mind that in this matter one is in many cases entirely dependent on the powers of observation and the reliability of the relatives who supply the history. A relative may often fail to notice any abnormality until the condition is made suddenly obvious by an exacerbation of a gradually developing psychosis. In fifteen cases the symptoms appeared in well-marked form suddenly—that is, the patient's abnormality became very obvious within a day or so of the relative noting there was anything wrong. Twelve of these patients recovered. In twenty cases the symptoms appeared gradually over a period which ranged from a few days to a week or more ; fifteen of these patients recovered. The recovery rate was therefore a little higher in the former cases where the onset was sudden.

The average age of all the patients was 29 years. The average of those who recovered did not differ materially from that of those who failed to get well.

Duration of the Psychosis

The average duration of the mental symptoms in the twenty-six cases with recovery was ten months. In nine the duration was five months or less ; in another nine between six and seven months ; and in the remaining eight cases the time ranged from eleven to thirty-three months. In other words, eighteen of the twenty-six patients who recovered were well within seven months from the onset of the psychosis, and the remaining eight were ill for a much longer period.

If now the form of the psychosis is considered in relation to the duration of the symptoms, it will be seen that of the eighteen patients who recovered within seven months six were delirious, six schizophrenic, four depressive, and two excited. Of the eight who took from eleven to thirty-three months to recover six were depressive and two schizophrenic. It will be noted from this that, as has already been indicated when dealing with the different forms of psychosis, all the excited and delirious patients who recovered did so in a relatively short time, while rather more than half of the depressive patients who got well took a relatively long time. The majority of the schizophrenic patients who recovered did so within a fairly short period.

Various Other Factors

Out of the total of thirty-five cases, the mental symptoms appeared at the first pregnancy in sixteen, at the second pregnancy in eight, at the third pregnancy in five, at the fourth pregnancy in two, and at the fifth, sixth, seventh, and eighth pregnancies in one case each. Of the sixteen cases in which mental disorder was related to a first pregnancy, thirteen patients (80 per cent.) recovered ; of the eight connected with a second pregnancy, five patients (62 per cent.) recovered ; of the five cases connected with a third pregnancy, three patients (60 per cent.) recovered ; one of the two patients in whom the mental disorder was related to the fourth pregnancy recovered ; while in the four cases in which it was connected with the fifth, sixth, seventh, and eighth pregnancies respectively, all the patients made good recoveries. The small number of cases connected with the fourth, fifth, sixth, seventh, and eighth pregnancies makes it impossible to generalize, but from a consideration of the cases connected with the first, second, and third pregnancies it would appear that the chances of recovery are best in those cases in which the breakdown is associated with a first pregnancy, and the outlook is much less bright in those cases associated with the second and third pregnancies.

When the different forms of mental disorder encountered in this series of thirty-five cases (the two patients who died being excluded) were dealt with in detail it was pointed out that, in addition to the child-bearing which was the main cause of the breakdown, a number of other causal factors, either singly or in combination, appeared to play a part in the development of the psychosis. These additional factors were mentioned in each case when they were present. If the thirty-five cases are considered as a whole it will be found that in twenty-eight cases one or more additional causal factors were present, while in the remaining seven cases they were absent. Viewed from the standpoint of recoverability of the twenty-eight cases with additional factors, twenty-one (74 per cent.) recovered, while of the seven cases without additional causal factors five patients (71 per cent.) made a good recovery. The percentage of recovery is thus very similar in both groups, and the presence or absence of any additional factor in the causation of the psychosis does not seem to influence the chances of recovery to any extent.

In conclusion the writer would like to thank Dr. N. Roberts, medical superintendent of West Park Mental Hospital, for his permission to publish the details of the cases concerned.

CASE OF ALBERS-SCHÖNBERG'S DISEASE

BY

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AND

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(*With Special Plate*)

A European female patient, aged 21 years, was admitted to the Kimberley Hospital with a history of difficulty in breathing while sleeping of two years' duration and sore throats of one year's duration. The previous history given by the patient was that she had had measles, chicken-pox, and scarlet fever as a child, and that she had had much pain in both ears. Otherwise she had always been healthy.

The parents were both dead, the father having died at the age of 63 and the mother at 46 years. They were both of big stature. The patient stated that the father and mother had been cousins. A photograph of the parents on their wedding day was procured, and the parents were seen to be of huge physique, and the mother had a very broad bridge to her nose. There were three sisters and two brothers alive and well, while three sisters and two brothers had died. The patient was the youngest living child.

Clinical Examination

On examination it was seen at a glance that there was a fair degree of exophthalmos, a wide bridge to the nose, and a left-sided facial paralysis, which the patient said she had had for nine years (Fig. 1 on Special Plate). She was deaf, and while reading had to use spectacles. There was difficulty with speech, and she appeared to be somewhat sluggish mentally.

Investigation of the ears, nose, and throat revealed no abnormality in the drums, no hypertrophy of the tonsils, and no faucial abnormality. There was, however, gross swelling and oedema of the inferior turbinates on both sides, and pus could be seen passing down the naso-pharynx. The condition of the teeth was good. Nothing else abnormal was noted in the buccal cavity. The nasal condition was treated by syringing with normal saline, and cleared up fairly quickly.

Routine examination of the other systems of the body did not reveal any abnormalities.

Radiological Investigation

After some time, however, she began complaining again of the same symptoms, and interest in the case quickened when it was decided to *x*-ray the patient's skull, in order to rule out the possibility of any infection of the sinuses. Dr. Roberts, the radiologist, was down with influenza at the time, and the workers in the radiological department reported to him that they could not get the rays to penetrate the patient's skull with the usual routine technique ; with an increase of the intensity and exposure a very interesting state of affairs presented itself. It was then decided to take *x*-ray films of the entire skeletal system.

The results shown in the films of the different bones and the clinical and biochemical data made us come to the conclusion that we had discovered a case of Albers-Schönberg's disease.

The condition being one where excessive deposits of calcium are found in the bony skeleton, the urine and blood were both examined by the Medical Research Institute in Johannesburg.

Biochemical Data

The report on the urine was that it was pale amber in colour and slightly turbid ; the specific gravity, 1007 ; the reaction was acid ; albumin was absent ; and the specimen showed re-

ducing properties, which may have been due to the chloroform present (for preservative action in transit). The calcium content was 36 mg. per 100 c.cm. There were no other features.

The report on the blood was 9.5 mg. calcium per 100 c.cm., which is within the normal limits.

A blood count was taken, and showed red blood cells, 5,000,000, white blood cells, 6,000. There was no poikilocytosis, and no nucleated red cells were visible.

X-Ray Reports

The following is a detailed report of the radiological appearances of the different bones.

Skull.—All the bones of the cranium show increased calcium ; moreover, their thickness is greatly increased—in the occipital region to over one inch. The mastoid cells are obliterated. The pituitary fossa is very irregular and cannot be well defined. There is a suggestion of calcification within the fossa, apart from the expansion of the sphenoid shadow. In the lateral view the nasal sinuses show moderately well. There is increased calcium deposit in the orbital fossa sufficient to account for the exophthalmos present. Both the upper and the lower maxillae are increased in density and thickness. The teeth appear to be well preserved.

(The exposure required 15 kilovolts more than used in normal routine.)

Spine.—In the antero-posterior views the vertebral bodies are of normal shape but of evenly increased density. In the lateral views the increased density is seen to be more pronounced at the upper and lower aspects, with cancellous tissue showing in the centre.

Ribs (Fig. 2).—The ribs are increased in density and thickness, but cancellous tissue can be shown. (The twelfth rib on the left side is absent.)

Clavicles (Fig. 2).—These are notably thicker than normal, and their density obscures any cancellous tissue.

Pelvis.—There is a uniform increase in density, but no abnormality of outline. The epiphyses of the iliac crests have not united.

Femora, Tibiae, and Fibulae.—There is a general increased density, though cancellous tissue is shown. There is increased thickening of the diaphyses, but no definite clubbing of the metaphyses.

Patellae.—These are within the normal limits.

Humeri, Radii, and Ulnae (Fig. 2).—These show the same changes as the femora, tibiae, and fibulae.

Scapulae.—These are increased in density, but the outline is within the normal.

Tarsus.—There is increased density, more marked at points of stress.

Metatarsus.—There is some increased density, but cancellous tissue is shown. The diaphyses instead of being biconcave tend to be biconvex.

Phalanges of Feet.—Practically within the normal.

Carpals (Fig. 3).—General increase in density, but no abnormality of outline.

Metacarpals (Fig. 3).—General increase in density, but cancellous tissue is seen. Diaphyses biconvex instead of biconcave.

Phalanges of Hand (Fig. 3).—Similar to metacarpals.

Commentary

There are certain features in this case where the radiological appearances and some of the clinical findings are at variance with those recorded in the literature, and others, again, that have not been mentioned before. In our case there is the difference in the intensity of bone structure of the different bones in the skull—for example, the occipital bone, which in parts is more than one inch in thickness. There is also visible here a definite deformity in the outline of the pituitary fossa, which appears to be irregularly deepened and increased in capacity. Another feature not noted in the literature before is the presence of exophthalmos, there being in this case sufficient increased calcium deposit in the frontal areas of the skull to account for the degree of exophthalmos manifested. In this case no optic atrophy could be made out, there being no abnormality of the fundus oculi and the optic disks. Whereas dental caries is described as a concomitant feature of this condition, we found that the dentition in this patient was quite good.

No mention has been made in the literature of the clavicles, which we found to be very wide and dense. There was also a difference in the appearance of the metatarsals, metacarpals, and phalanges of the hand. Instead of showing a concavity in their outline they showed a convexity. There was also complete absence of those features in the phalanges of the hands as described by Brailsford.

Whereas a progressive anaemia is described as a feature in this condition, this case, on the contrary, showed a good blood picture. There was a negative Wassermann reaction of the blood. An additional feature put forward in this clinical entity is consanguinity of the parents, who were cousins.

The rest of the family are scattered over distant parts of the country, and we were able, therefore, to examine only one brother and one sister. There are, however, no features in their cases simulating the condition in their youngest sister.

Similarity of so many of the clinical, biochemical, and radiological phenomena in this case with those described as found in Albers-Schönberg's disease makes us feel that there is no doubt about this being another of these rare cases.

We wish to express our thanks to Dr. Norman Weinberg for his permission to publish this case.

INSERTION OF THE SMITH-PETERSEN NAIL INTO THE FEMORAL NECK

BY

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(*With Special Plate*)

Progress in surgery consists to some extent in rendering difficult operative procedures easier to perform. It is claimed that the following technique of introducing the Smith-Petersen nail into the fractured neck of the femur fulfils this requirement, since it is simple enough to eliminate the necessity for considerable operative skill on the part of the surgeon, and requires no elaborate instrumentarium.

I have been dissatisfied with the results of the open operation in my hands during the last three years, not only because of its limited application, but for the following reasons:

1. Complete reduction by open operation is not by any means certain. It is difficult to expose the fracture sufficiently for the human eye to see it in both the antero-posterior and lateral planes at once, and most surgeons have been disappointed with the *x*-ray photographs of an apparently complete reduction on the table.

2. The operation is a difficult one, and undoubtedly carries a certain mortality. Accurate reduction is not sufficiently essential to necessitate the risk of a patient's life. A position of slight coxa valga will give a painless weight-bearing limb, provided that bony union takes place.

3. Radiology on the operating table, when there is a large incision, undoubtedly exposes the patient more to the risks of infection than when the incision is confined to half an inch.

4. There is frequently a certain amount of fibrosis associated with the opening of the capsule of the hip-joint, with resultant limitation of movement.

The main criticisms which have been levelled at the closed operation are that reduction may not be complete, and that there is difficulty in placing the nail centrally in the neck. By the open operation, it is stated, the fracture can be reduced more completely, and the nail can be introduced more certainly.

I have not found reduction a difficulty in the closed method, but it may be necessary to modify the Whitman technique. Occasionally, lateral traction on the shaft of the femur or, possibly, excessive internal rotation, may be required. Antero-posterior and lateral *x*-ray photographs will always show if reduction is complete; if not, the requisite manœuvre can be adopted. The notorious mobility of the femoral head has not been found to be a bar to reduction in my experience, though I am quite prepared to admit that some cases may be difficult to reduce by the closed method, and in these the open operation may be necessary.

Guide calibrated in inches.

There may be difficulty in inserting the nail accurately, not so much in the antero-posterior plane as in the lateral, for in this plane the neck of the femur is very narrow. The length of the nail to be used must be determined with the utmost nicety. As Watson Jones has pointed out, in the extreme medial fracture, unless the nail is centrally placed, it may not have a sufficient grip and may break out. All these difficulties are adequately dealt with in the method described below.

The advantages of the closed operation are numerous. There is little trauma, haemorrhage, or shock, and the incision is confined to half an inch. If the patient can stand a spinal anaesthetic he or she can stand the insertion of the nail by this method. The operation takes from one to two hours. This time is made up as follows: reduction and fixation of feet, 15 minutes ; four *x*-ray photographs at ten-minute intervals ; actual operating time, 15 minutes.

Technique

Two *x*-ray photographs—an antero-posterior and a lateral—are taken of the fractured neck. An antero-posterior photograph (see Fig. 1 on Special Plate) is also taken of the opposite side to show the angle of the neck to the shaft. A spinal anaesthetic is given in all cases unless specially contraindicated. The patient's feet are attached to the foot-pieces of an orthopaedic table by plaster-of-Paris. The fracture is then reduced by the Whitman method, any modifications which may seem necessary from the skiagrams of the displacement—such as lateral traction or increased extension—being made. A piece of strapping is applied from without inwards to the thigh just above the knee, and is fastened to the bar of the orthopaedic table. This relieves the torsion strain on the knee-joint due to the internal rotation.

1. *Direction in the Antero-posterior Plane.*—The area in the region of the groin and great trochanter is swabbed with iodine and shut off with sterile towels. Three rows of Michel clips at half-inch intervals are attached to the skin of the groin, approximately over the head of the femur. Three further rows of clips are applied directly anterior to the great trochanter, continuing down along the line of the shaft. An antero-posterior skiagram is now taken. It will be found that one of these clips lies directly over the site of the shaft of the femur where the insertion should be begun, and one will lie over the head of the femur where the nail should end (see Fig. 2). These two clips are left on the skin and the remainder are removed. This gives the direction in the antero-posterior plane.

2. *Direction in the Lateral Plane.*—A Watson Jones guide is now introduced directly anterior to the great trochanter in the direction already determined by the two clips. This is passed up along the neck of the femur till it abuts against the head or the anterior lip of the acetabulum. One Michel clip is applied to the skin below the guide at the posterior margin of the great trochanter. A lateral *x*-ray photograph is now taken. A curved cassette is not necessary, nor need one bend the patient's opposite knee. If the limbs are widely abducted, the tube can be comfortably introduced between the two legs. An assistant holds the cassette wrapped in a sterile towel and presses it into the loin just above the crest of the ilium. This lateral photograph will show if the guide is parallel with the neck, and in practice we find that this is invariably so (see Fig. 3). If it is not parallel, it is very simple to make the necessary adjustment by the eye when the second guide is inserted into the bone. A point midway between the guide and the posterior Michel clip is now taken, and a half-inch incision is made. The cortical bone is pierced by a one-eighth-inch drill, and the guide is introduced into the bone. This is kept parallel to the first guide, which is protruding for two or three inches through the skin, and gives the lateral direction very precisely. An antero-posterior photograph and a lateral one are now taken and the accuracy of the position of the guide in the bone is confirmed (see Fig. 4). It has rarely been found necessary to withdraw the guide or to insert more than one.

3. *Length of the Nail to be Used.*—Determination of the length of the nail from skiagrams of nails placed on the skin is unreliable. Distortion takes place owing to the change in distance from the tube, and owing to the internal rotation. Messrs. Down Bros. have made a specially calibrated guide for me so that the calibrations in centimetres shall be shown in the *x*-ray photograph. Any distortion which takes place in the neck will also take place in this guide. The length of the nail can thus be ascertained with exactitude (see Figs. 5, 6, and 7).

The Smith-Petersen nail is now introduced over the guide through the half-inch incision and gently tapped home, using the Stirling punch. The wound is closed with one suture.

No case results are described in this paper. Since completing the technique eight cases have been operated on in the last five months. It is as yet too early to assess end-results, but, in all, bony union has either taken place or appears to be taking place in good position. There have been no fatalities.

Conclusions

1. A simple modification of the Johannsen technique of inserting the Smith-Petersen nail is described.

2. It is claimed that by this method the Smith-Petersen nail can be correctly placed at the first attempt.

3. The relative methods of the open and closed operation are discussed.

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MYOSITIS OSSIFICANS MULTIPLEX

BY

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(With Special Plate)

Myositis ossificans in its simpler form is found in various parts of the body. The ossification of muscular and tendinous structures about the adductor tubercle in rider's bone, or that found in the brachialis anticus, are perhaps the most common. These simple forms are traumatic in origin, but of the so-called multiplex form, myositis ossificans progressiva, little is known. Some writers, Recklinghausen being one, have put forward the theory of congenital diathesis. Recently Masselot and de Beaujeau have reported a case in which they observed that the ossifying masses occurred after trauma and were preceded by typical haematoma formation. Their patient also presented a number of congenital anomalies.

History of Trauma

The case I am about to describe has a history which seems to point to some element of trauma. The history, which is somewhat mythical, has been obtained with difficulty from the patient's mother.

The patient in question is aged 19. When she was 4 years of age the father divorced the mother, and he was given the custody of the child. Some months later the mother was called to see the child, who was very ill. She was told that an evil spirit of the underworld in the shape of a ram had appeared and battered her child, and she found the child lying helpless, swollen, bruised, and contused all over. A bone-setter was called in, who pulled and twisted the limbs and body of the child, doing ultimately more harm than good. He was reported to the police, who took the matter up and sent a doctor to report upon the case, with the result that the bone-setter was prosecuted. Some time after the father died the mother took possession of the child, whose condition gradually progressed to her present state.

Clinical Examination

The patient's present condition may be summarized as follows:

Skull.—The movements of the skull are free, but jaw movements are limited by bridges of bone in the masseter muscles.

Spine and Chest (Fig. 1 on Special Plate).—There is complete immobility of the whole spine apart from a few degrees of flexion and lateral rotation in the upper cervical region. The respiratory movements of the chest are absent, respiration being carried out by the abdominal muscles. A sheet of bone is palpable alongside the vertebral column in the erector spinae muscles. Bony masses are also scattered over the posterior aspect of the chest wall, along the border of the right latissimus dorsi, and below the left scapula.

Right Shoulder (Fig. 2).—The shoulder is fixed to the chest wall, and bony masses are palpable below the right clavicle and over the right upper ribs.

Right Arm.—There is slight limitation of movement at the right elbow, but the wrist and fingers move freely.

Left Shoulder.—This is immobile and fixed to the chest; bony masses can be felt below the left clavicle and about the head of the humerus, extending down to the middle of the upper arm.

Left Arm.—Slight limitation of both flexion and extension at the elbow; wrist and fingers move freely.

Pelvis (Fig. 3).—A mass about 3 inches by 1 inch, which is movable and not attached to bone, is felt around the abductor tendons of the left thigh. A fixed mass, which is revealed by the *x*-ray, can be felt, extending from the right pubic bone to the upper part of the right femur. There is a long, pointed exostosis under the skin, and almost piercing it over the right ischial region.

The patient cannot sit; she either stands, hobbles on her toes, or lies down.

Right Hip-joint (Fig. 2).—There is a flexion deformity ankylosed at 125 degrees, and masses are felt along the inner aspect of the femur.

Right Leg.—Movements are limited at both knee- and ankle-joints, and a mass is palpable along the inner and upper part of the tibia. The movements of the right foot are fairly good. A small exostosis can be seen and felt over the middle phalanx of the second toe.

Left Hip-joint.—The range of flexion and extension is limited to about 25 degrees.

Some General Points

The body tumours are various in shape: some are pointed, some flat, some angular, and some antler-like; some are fixed to bones, whilst others are in the soft parts and are not attached to bone. The amount of calcium in the serum was estimated at 11.7 mg. per cent., which is not unduly abnormal. The patient has no congenital deformities.

I first saw this patient four years ago, when she was brought up for examination for the myositis ossificans; but more recently she was brought to hospital with a fracture of her left humerus between the upper and middle thirds, following a slight knock. This condition renders the bones very liable to pathological fracture. Apart from the fracture I have found no change in the patient since my first examination four years ago.

I wish to thank Dr. Affifi of the Government Hospital, Alexandria, for the radiological investigations.

J. Orensanz (*Bull. Off. Internat. d'Hyg. Publique*, January, 1936, p. 67) states that poliomyelitis first became a notifiable disease in Spain in January, 1919, but a statistical study of it was not made until June, 1930. An epidemic of 315 cases occurred at Madrid in 1929 with a morbidity of 20.34 per 100,000 inhabitants and a death rate of 4.8 per cent. Both sexes were equally affected. Most of the cases occurred in patients between the ages of 1 and 4 years. Since 1930 poliomyelitis has been endemic in Spain, the average morbidity and mortality for the years 1931, 1932, 1933, and 1934 being 1.42 and 0.11 respectively. Although poliomyelitis is endemic throughout the year, there is a distinct rise in its incidence in the autumn. The distribution of the disease has been sporadic throughout the country, with slight epidemic outbreaks in certain provinces, especially in 1933 and 1934.

Clinical Memoranda

A Brodie's Abscess in the Head of the Radius

(With Special Plate)

The occurrence of a Brodie's abscess in an unusual situation, bu[illegible]which showed all the classical signs both in history an[illegible]ausation, seems to warrant recording.

A lad aged 18 came with a history of having injured his left arm while playing Rugby football two years previously, since when there had been discomfort and more latterly pain when performing certain movements. The site of the pain was over the head of the radius, which was slightly tender on palpation. There was a difference of half an inch only in the muscles of the forearm.

An *x*-ray examination showed (see Figure on Special Plate) "increase in the diameter of the radius just below the head, with an area of rarefaction in the centre of the bone suggestive of a Brodie's abscess." At the operation, which was performed by Mr. D. M. Hughes, F.R.C.S., a small abscess cavity was exposed. It contained a bead of pus, from which staphylococci were recovered by culture. Recovery was uneventful, and the functional result perfect.

London, N.7. W. LEES TEMPLETON, M.D.

A Case of Posterior Interosseous Paralysis

This case appeared to us to be worth recording, because, so far as we know, no similar one has been described as occurring in this country, and some important aspects of it would have escaped recognition but for its resemblance to a few which have been observed in America and France.

CASE HISTORY

The patient is a man aged 25. His occupation for the last year had been as a barman; for two years previously he had been unemployed. He is a total abstainer. His general health is good. On November 26th, 1935, he felt pain round the left elbow on waking; it was not severe, and he was able to continue at work. The pain gradually improved, but on the next day he found that the left hand was weak, and the weakness gradually increased during the next forty-eight hours.

On December 2nd he was seen at the Royal Free Hospital by one of us (N. H.). He complained of weakness of the left wrist and hand, and slight discomfort in the region of the elbow. He held the elbow in a position of slight flexion, and disliked its being fully extended.

On examination there was great weakness of the extensors of the three ulnar fingers, and rather less weakness of the index and thumb. The terminal phalanges could be extended if the proximal ones were supported. The wrist could be fully extended against gravity, but the extension could not be maintained against even slight opposition. Supination and pronation were performed normally. All other muscles acted well. No sensory loss was found. No abnormal physical signs were found in the right arm or in any other part of the nervous system.

On December 6th he was again seen. The discomfort in the elbow had ceased and the joint was extended normally. There was no change in the muscular condition. A radiograph of the elbow-joint showed nothing abnormal. On December 9th he was seen by one of us (C. B. H.). All muscles of the left arm and forearm responded easily to faradism except those extending the thumb. In these no faradic response could be obtained, and the galvanic response was feebler than on the opposite side, but not definitely sluggish. Partial reaction of degeneration was therefore present in the extensors of the left thumb. At the time it was noted as a curious fact that the little finger, which was the site of maximal disability at the onset, showed normal electrical responses. This lack of correspondence between voluntary power and electrical excitability is seldom observed.

By January 8th, 1936, even after eighteen treatments with superposed diathermy and surging faradism to all muscles of the forearm, the power of the affected muscles had further deteriorated. Extension of the wrist had somewhat improved since December 18th, when it was at its worst, by hypertrophy of the extensor carpi radialis longior. The muscles were re-tested, when it was found that there was no response to faradism in any muscle supplied by the posterior interosseous nerve, and all these muscles showed a sluggish response to galvanism. This indicated that reaction of degeneration was now present.

DISCUSSION

"Wrist-drop" may be the result of a lesion of the musculo-spiral nerve in the arm or of the posterior interosseous nerve. In the former case there is complete inability to extend both fingers and wrist; in the latter some power of extension of the wrist is preserved because the extensor carpi radialis longior remains in action. Hysterical wrist-drop is also met with; in this case the patient does not extend the terminal phalanges when the hand is supported. This patient conforms entirely to the type in which the lesion lies in the posterior interosseous nerve.

Unilateral lesions of this nerve are usually traumatic, and when they are the prognosis is good. This patient could remember no injury of any kind at any time. There was no history of exposure to lead, nor did the condition, which arose suddenly with local pain and remained entirely unilateral, in any way suggest it.

On the other hand, the description by H. W. Woltman and J. R. Learmonth[1] of a series of cases which they observed at the Mayo Clinic seems to throw much light on this patient's condition, particularly as regards prognosis. This series consisted of five cases: four of them were old-standing, and in one of the four the paralysis had been present for twenty-four years. In two cases the onset was at the age of 13, and in the others it occurred in the thirties. In no case did any improvement take place; the extent to which the paralysis spread varied considerably, but never passed beyond the distribution of the posterior interosseous nerve. In all but one of them the weakness was first appreciated in the little finger and spread radially to the others. In the only case which was explored an anatomical abnormality was found, the nerve passing superficially to the supinator brevis instead of through its substance. An attempt was made to reduce pressure on the nerve by excising a strip of extensor aponeurosis, but no improvement resulted.

The mode of onset, distribution, and course of the paralysis in our case point to its being of the same nature as those in Woltman and Learmonth's series. Hence we are led to regard the prognosis as entirely unfavourable, although in isolated palsies of toxic or traumatic origin it is usually good. It seems reasonable to suppose that the power of extension of the wrist will continue to improve as the result of hypertrophy of the unaffected extensor carpi radialis longior. It is, however, unlikely that any restoration of function will take place in the extensors of the fingers or in the affected extensors of the wrist.

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[1] *Brain*, 1934, lvii, 25.

Reviews

PROBLEMS OF PURE MILK

Cow's milk, from its moment of origin until it reaches the consumer, is exposed to a succession of risks of deterioration in quality, the effective control of which demands of both producer and distributor enlightened and vigilant supervision almost at every turn. A work on the subject of milk supply by the medical officer and sanitary inspector of the borough of Southgate which has lately appeared[1] sets forth in an instructive manner the various problems raised by these detrimental influences, and shows the methods by which they may be brought under control.

The opening chapter, on the composition and food values of milk, includes references to milk for school children and the national milk consumption of a number of countries. Milk-borne disease is well presented, the thermal death points of pathogenic bacteria being stated, and accounts given of bovine tuberculosis and of outbreaks of septic sore throat, typhoid fever, and other infections which have been conveyed by milk. In the chapter on the cow and her diseases the tubercle-free herd is discussed, and a disillusioned view is expressed of the Tuberculosis Order of 1925. Cowsheds with modern fixtures in various styles are suitably figured, and a useful article is devoted to the hygienic reconstruction of obsolescent premises. In the chapter on the dairy it is helpfully exhibited how the small producer can effectively adapt an ordinary domestic copper for the sterilization of all his milk vessels by steam. Examples of steam sterilizers on a larger scale are submitted also.

The chapter on clean milk production notes the sources of contamination, and properly draws attention to the clean milks which, given reasonable care, have been known to be produced under unfavourable structural conditions. Nevertheless, work in a hygienic cowshed, spacious, airy, and well equipped, lightens the task of all concerned. Illustrations are given of milking-stools, milk-pails, which should be covered and have lateral openings, and milking machines for both individual and collective delivery. It is added that all unnecessary pouring of milk within the cowshed should be avoided. In the article on milk-straining preference is rightly given to the cotton-wool disk strainer. The cooling of milk in order to check bacterial growth is advocated, a temperature as far below 50° F. as possible being the standard set. A home-made cooler is shown, and also more elaborate types, to work with water, ice, or brine. From the article on churns it emerges that certain producers still think that these containers should be made with ventilating apertures in their lids, with the object of preventing souring of the milk in transit.

The chapter on distribution directs attention to the responsibilities of the distributor who handles milk received from a number of separate producers. It deals with the equipment of the large distributor's premises, with churn washers, refrigerators, and bottling plant, of which many makes and styles are figured and explained. With the satona type of carton the process begins with the flat cardboard sheet and terminates with the complete carton duly filled with milk and sealed. Pasteurization is amply discussed and illustrated, and notice is taken of irradiation. In the section on laboratory control the routine work is covered. Under bacteriology the methods of sampling are indicated, and the subsequent bacteriological procedure detailed, especially for the agar count and the coliform test. Under chemistry reference is made to the Richmond slide rule, the Soxhlet extractor, the Kjeldahl process, and the Hortvet cryoscope. The final chapters take up legislation and the future of the milk industry.

The book should give useful guidance on points arising in the work of both public health officials and milk producers. On these very adequate grounds it is recommended.

[1] *Milk Production and Control.* By William Clunie Harvey, M.D., D.P.H., M.R.San.I., and Harry Hill, M.R.San.I. London: H. K. Lewis and Co. Ltd. 1936. (Pp. 555; 180 figures. 21s. net.)

THE BLOOD IN HYPERTENSION

Le Sang des Hypertendus,[2] by Professor GEORGES CARRIÈRE and Dr. C. HURIEZ, is an analysis of the data obtained by study of the blood chemistry in a series of 105 cases of high blood pressure. The results are treated quasi-statistically, but some of the analyses were performed on only a proportion of the patients and none appears to have been controlled by simultaneous examination of an adequate number of normal people. The differences from the arbitrary normal level are often small, and it is doubtful whether the authors have achieved their declared object, "surtout d'apporter des faits." As an example we may note that the association of hypertension and hypercholesterolaemia, on which much stress is laid, is by no means generally accepted. The authors found that the non-protein nitrogen of the blood was normal, the sugar tended to be elevated, and the chlorides to be depressed. The total cholesterol was constantly and notably increased, and with this was associated a moderate augmentation of the fatty acids. The plasma proteins were increased, as a result apparently of an increase in serum albumin. In consequence of these chemical changes the blood was heavier than normal, and the viscosity, the sedimentation rate, and the osmotic pressure of the serum were increased.

The authors conclude that essential hypertension is not of renal origin, and consider that the metabolic and humoral disturbances observed may be connected with disordered activity of the adrenals, the thyroid, and the liver. There is a long list of references, in which the names of English authors and journals are not always correctly spelt.

RADIOLOGY OF BONES AND JOINTS

The Radiology of Bones and Joints,[3] by Dr. J. F. BRAILSFORD, has been so popular that a second edition was called for within two years. The work is the outcome of much personal investigation and a wide knowledge of the literature of a subject that is probably one of the most difficult with which the radiologist has to deal. It is obvious that the author, all through, remembers the many difficulties with which the radiologist is beset in the interpretation of bone and joint radiographs, and knows how much depends on the radiological report, since in many cases part of the responsibility rests with the radiologist as to whether a limb should be amputated or not. Dr. Brailsford stresses the value of periodic examination by *x* rays of the changes occurring in normal and irregular growth, in the inception and progress of systemic and localized disease, and before, during, and after the administration of various forms of treatment. The bone changes seen in health and disease are concisely set out, and the author states that one of the chief objects of this book is to indicate the significance of the radiographic findings, and to give an account of the recent advances as described in radiological journals.

The book is divided into two parts. Part I deals with such subjects as the skeleton at birth, congenital abnormalities, bone dystrophies and problems of ossification, in

[2] *Le Sang des Hypertendus.* By Georges Carrière and Claude Huriez. Paris: G. Doin et Cie. 1936. (Pp. 386. 50 fr.)

[3] *The Radiology of Bones and Joints.* By James F. Brailsford, M.D., M.R.C.S. Second edition. London: J. and A. Churchill, Ltd. 1935. (Pp. 571; 340 figures. 30s.)

addition to many others. Further chapters are written from the anatomical point of view, the author proceeding from the normal appearances of the bones and joints to the variations of the normal, and finally to the pathological. A new chapter has been added on dental radiography, and this is a welcome addition. Part II opens with a discussion on bone changes in systemic and localized bone disease, such diseases as osteogenesis imperfecta, achondroplasia, scurvy, rickets, osteitis fibrosa cystica, and the bone changes in anaemia, Gaucher's disease, and xanthomatosis being all dealt with in a masterly manner. The final chapter deals with bone tumours, and although this is all too brief, it has to be taken along with descriptions in the earlier part of the book. The radiological diagnosis of bone tumours presents many difficulties, and is an art only acquired with long experience. The radiologist may find it a little troublesome at times to have to turn from one part of the text to another when reading about some particular lesion, but this he soon gets accustomed to.

The book is one which can be recommended to all radiologists and to students studying for the diploma in medical radiology. The radiographs are excellent in quality, and the drawings, all of which have been made by the author himself, are very valuable. The index is well done, and there is a useful bibliography.

DISEASES OF THE LIVER

Professor SAMUEL WEISS has recently published a large volume which deals most comprehensively with the diseases of the liver, gall-bladder, ducts, and pancreas.[4] The author believes that textbook articles on the subject are usually inadequate and encyclopaedias often inaccessible to students, and he has set out to produce a volume essentially devoted to the consideration of everyday problems in biliary and pancreatic disease. He has done much more than that. The history of our knowledge of liver disease, and the literature of former authors, are discussed and quoted. The result, then, is a huge volume of 1,100 pages, including ninety-odd pages of references. It is unfortunately too heavy to hold comfortably, and is to be regarded therefore as a library book rather than as a working handbook.

The matter is good. After a short account of the anatomy and physiology of the liver and gall-bladder, the examination of patients with suspected liver disease is fully dealt with, both by indirect methods of estimating liver function, by obtaining the bile with the duodenal tube, and by demonstrating the gall-bladder by means of opaque dyes and the fluorescent screen. Almost all the methods of examination that have been suggested are critically discussed, and Dr. Judson Quimby contributes the chapter on roentgenology. The technique for this is well described, but the accompanying reproductions of radiographs are not so clear as are usually obtainable by modern methods.

The diseases of the liver, gall-bladder, and pancreas are then dealt with, and this clinical part of the book is satisfactory. The descriptions follow orthodox lines; they are fair and sufficient, and the treatment suggested provides in short space the means of meeting by modern methods the indications as they arise. There is a helpful chapter on the surgery of the gall-bladder and the bile ducts by Professor Prescott Grant, and a useful summary of dietetic management of these diseases. The author, as if conscious that his work is too diffuse for ready reference, provides a summary of treatment. In two chapters the clinical aspects of pancreatic disease and the means of testing pancreatic function are discussed. Here again the whole ground is covered, but without critical judgement. The volume as a whole represents the high-water mark of knowledge of the portions of medicine with which it deals, but remains a compilation rather than a guiding stimulus to further advances.

[4] *Diseases of the Liver, Gall-bladder, Ducts and Pancreas. Their Diagnosis and Treatment.* By Samuel Weiss, M.D., F.A.C.P. New York: Paul B. Hoeber, Inc. 1935. (Pp. 1099; 355 figures. 10 dollars.)

PAINFUL AND DANGEROUS EAR DISEASES

Mr. R. R. WOODS has chosen what at first appears to be the rather curious title of *Painful and Dangerous Diseases of the Ear*[5] for a most useful book. There is no suggestion that other diseases may be neglected or ignored, but it is just the conditions included in this title which are likely to be encountered by the student and to present themselves to the practitioner for diagnosis and treatment. In this book will be found enough anatomy to make the surgical pathology of aural disease intelligible, and a sufficient description of the methods by which the ear should be examined in order to enable the diagnosis of all ordinary complaints to be made—a section which is liberally illustrated—and this is followed by a general account of middle-ear disease and mastoid suppuration and the intracranial complications. The short chapters on the intracranial complications are excellent, except in the case of meningitis, the early diagnosis of which is highly important from the point of view from which the book is written. A fuller account of this is necessary both for its own sake and to keep the various parts of the text in proper proportion. However, there is some compensation for this defect in a short account of the cerebro-spinal fluid, its cytology, and its chemistry.

The author is rightly an enthusiastic advocate of the use of the electric otoscope, and a novel feature of his book is a fine collection of coloured drawings, showing the enlarged image of the tympanic membrane and its surroundings as seen with this instrument. This book can be strongly and confidently recommended to any practitioner called upon to deal with aural cases, for it contains the information he will require, concisely and accurately presented.

TUMOURS OF THE URINARY BLADDER

In his monograph on *Tumors of the Urinary Bladder*[6] Dr. EDWIN BEER gives a concise and valuable account of his life's work on the subject. It is a clinical description of 650 personal cases. When the patient was first seen the growth was malignant in 388 instances and benign in 262, but as the cases were watched a benign tumour became malignant in twenty-two instances, while in a smaller proportion a carcinoma was followed by a benign recurrence. This alternation between malignant and benign forms is well known by all who have much experience of these growths.

The main interest in Dr. Beer's work lies in the indications for different lines of treatment and the results he has obtained. He advocates cystoscopic electro-coagulation for all benign tumours, and states that "only in exceptional cases will an operative approach be necessary." This is contrary to the usual teaching that cystoscopic fulguration is only suitable for small tumours, and that cases where the growth is large require an open operation. The reviewer, however, entirely agrees with Dr. Beer's dictum. Turning to malignant growths, the

[5] *Painful and Dangerous Diseases of the Ear. A Textbook for Students and General Practitioners.* By R. R. Woods, M.B., F.R.C.S.I. London: H. Milford, Oxford University Press. 1936. (Pp. 188; 39 figures. 15s. net.)

[6] *Tumors of the Urinary Bladder.* By Edwin Beer, M.D., F.A.C.S. London: Baillière, Tindall and Cox. 1935. (Pp. 166; 52 figures, 8 in colour. 16s.)

author is of the opinion that tumours of the upper and lateral portions of the bladder are best treated by partial cystectomy, and that total cystectomy should, so far as possible, be reserved for cases where the trigone or the internal meatus is involved. He states also that the results obtained by these operations are "definitely better" than those obtained by deep *x*-ray therapy or the implantation of radium. In the former group an apparent cure was obtained in approximately 50 per cent. of cases that could be followed up for more than five years, while in the latter the proportion was 22 per cent.

This monograph can be strongly recommended to all urologists. It is a clear and compact account of the subject, written by one whose reputation is world-wide and whose opinion demands respect.

Notes on Books

Practical Biochemistry for Students of Medicine, by Drs. A. T. CAMERON and FRANK D. WHITE, has now attained its third edition (London, J. and A. Churchill, Ltd., 8s. 6d.). This book first appeared in 1930, and our reviewer then remarked (*B.M.J.*, 1930, i, 654) that although the number of textbooks of biochemistry was great, yet since this book covered the ground in an attractive and efficient manner it might find a wide popularity. This estimate has been confirmed by events, since three editions have appeared in six years. No extensive changes have been made in the new edition, but the subject-matter has been carefully revised to bring it into line with new advances.

Professor ALEXANDER FINDLAY has written a historical account of the teaching of chemistry in the Universities of Aberdeen (The University Press, Aberdeen) from its inception in 1783, when an advertisement appeared in the *Aberdeen Journal* stating that one George French, a surgeon, apothecary, and chemist, who kept a shop in Upperkirkgate, proposed to give a course of lectures on chemistry in the ensuing winter, in which he would explain the principles of that science and show the different experiments and processes on which it is founded. Professor Findlay has gathered accounts from many sources, which, when assembled, present a connected history of the subject. In it he has given, in a happy form, character sketches of the men who successively occupied the chairs of chemistry, as well as of the changes and developments in the university establishment. Many will be grateful to him for this compilation, and it may be hoped that others will be stimulated by his example to do the same for other universities.

The present reviewer has not read *Pareto's Treatise on General Sociology*, upon which Dr. L. J. HENDERSON of Harvard University has written the essay with that title now under consideration.[7] He is therefore not in a position to endorse or to criticize the author's summary or evaluation of the work to which attention is directed. He is somewhat in the position of reviewing a review without knowing its intimate subject. It seems probable that the great majority of readers of the present notice are in the same position. Dr. Henderson describes Pareto's book as having "all the marks of the spade-work of a pioneer," as "indispensable," as "a work of genius." It is a fact that Mussolini has attributed his abandonment of socialism to the teaching of Pareto. First published in 1916 in Italian, subsequently issued in French, and recently translated into English under the title *The Man and Society* in four volumes, published in New York, the book, however important, has not been accessible to English readers. Dr. Henderson gives in his essay a brief but clear exposition of its ideas and methods. He has certainly demonstrated to the present reviewer the suggestive and analytical value of many parts of it; and has excited a wish to read those parts of the extended work. To induce this frame of mind in his readers was no doubt his main object, and he may be held undoubtedly to have succeeded. It is possible, of course, that he has over-estimated the revolutionary importance of Pareto's treatise. Indeed, judging merely by Dr. Henderson's analysis of the first part of it, a sceptical mind might infer that this amounted to little more than a clarifying and underlining of the two propositions, now commonly accepted, that inductive reasoning is very much more valuable and reliable than deductive, and that men and societies are moved more by their emotions than by their reason. Yet the consequences of accepting these propositions in actual practice, and the social value of regarding conduct as in the main the manifestation of sentiment based upon non-logical explanations, are matters of far-reaching importance which are well worth emphasizing; and the illustrations worked out in the more synthetical part of the work are evidently both fascinating and highly suggestive. Dr. Henderson's is an excellent essay, directing attention to a sociological inquiry which it would be foolish to overlook.

Inspector-General C. DOPTER's volume on the Treatment of Cerebro-spinal Meningitis,[8] which forms part of the series known as *Les Thérapeutiques Nouvelles* edited by Professor Rathery, is the work of one who has had a wide and long experience of the disease in the French army, and has previously contributed several articles on the subject. The bulk of the book is naturally taken up by the serum treatment of the disease, including the causes of its failure in certain cases, but accessory measures such as vaccine treatment, endoprotein therapy, and chemotherapy also receive attention. The technique of the various methods for introduction of the serum, and the test for determining the freedom or obstruction of the ventriculo-meningeal communications, are described in an appendix.

The 1936 issue of the *Municipal Year Book and Encyclopaedia of Local Government Administration*[9] is a large volume of 1,644 pages, and comprises altogether fifty sections. Apart from its general utility in many directions, it affords a permanent record of the salient events in local government in the year which witnessed the centenary of the passing of the first Municipal Corporations Act in this country. The Minister of Health again contributes a preface, and the Minister of Transport a foreword to the roads and transport section. The past year was also notable for the progress achieved in almost every department of administration. New legislation was proposed to deal with certain aspects of the housing problem, and local authorities made headway with the campaign for slum clearance. The problem of "ribbon development" also received the attention of Parliament. In short (as the editor says in his preface) 1935 was a memorable year for local government in every respect. The first object of the present edition of the *Year Book and Encyclopaedia* is to serve as a permanent record of these developments. Its arrangement follows generally the lines adopted in the last few issues. This well-produced volume, with its handy thumb index, is one of the most complete and satisfactory reference books with which we are acquainted.

The report has now been issued of the proceedings of the joint conference last November in London of the Invalid Children's Aid Association and the Central Council for the Care of Cripples on the subject of the welfare of cripples and invalid children. The main topics of the papers now reproduced are the preventive measures and sequels of infectious diseases; the problem of physical handicap in modern life; and rehabilitation after accidents. The report is obtainable from the joint secretary of the conference, Carnegie House, 117, Piccadilly, London, W.1, price 2s. 6d. (postage 3d.).

[7] *Pareto's General Sociology. A Physiologist's Interpretation.* By Lawrence J. Henderson. London: H. Milford, Oxford University Press; Cambridge, Mass.: Harvard University Press. 1935. (Pp. 120. 5s. 6d. net.)

[8] *Le Traitement de la Méningite Cérébro-Spinale.* By C. Dopter. Paris: J. B. Baillière et Fils. 1936. (Pp. 140. 20 fr.)

[9] *The Municipal Year Book, 1936.* Edited by James Forbes. London: The Municipal Journal Ltd. (30s. net.)

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EPIDEMIOLOGICAL ASPECTS OF TUBERCULOSIS

The epidemiologist is not uncommonly regarded merely as a statistician, and therefore as a juggler with figures who forms abstract conclusions often little related to the practice of everyday medicine. Fortunately in recent years the practical aspect of epidemiological study has become more familiar. A series of papers on tuberculosis lately published[1 2 3] now emphasizes how the clinician with an epidemiological outlook may help to solve problems of immediate importance both to the practising physician and to the public health official. Probably because it is a chronic disease with effects not dramatically obvious, tuberculosis has in the past attracted little attention from epidemiologists except in regard to the study of mortality figures. Its contagious nature was established over fifty years ago, but the methods at our disposal for studying the infection have been too few or too coarse to enable extensive investigations to be carried out ; even what has been accomplished must be interpreted with caution. Only in the last few years has the public been educated and public health administration organized sufficiently to obtain the necessary approach to the family of the patient ; only recently have tuberculin testing and chest radiography reached scientific accuracy.

Fully availing themselves of these modern developments, Opie and his co-workers at the dispensary of the Henry Phipps Institute have investigated numerous families in order to determine the incidence and mode of spread of tuberculosis. They point out that " no adequate insight into the epidemiology of the disease can be obtained from an investigation limited to those who have tuberculosis recognizable by the usual methods of clinical diagnosis, but must include all forms of tuberculosis infection recognizable by tuberculin tests or roentgenographic examination in the absence of any impairment of health." The family was their unit of investigation, and in order to obtain exact knowledge of the development of the disease in a large number of persons for a period of eight years—the present report is based on 1,000 " white " families—an adequately trained staff and good technical equipment were essential. Certain features of the organization and procedure must be mentioned: (1) the efforts made to include all members of each household ; (2) the detailed economic and social information obtained ; (3) the frequent Mantoux testing and radiography ; (4) the elaborate case records, enabling the health of all members of the household to be correlated with that of the contagious person and with each other. To appreciate the significance of the findings one must be familiar with the authors' classification of tuberculosis, particularly with their conception of latent disease—namely, tuberculous infection, unaccompanied by symptoms or physical signs, which may be progressive though not clinically manifest and is demonstrable only by radiography. It is important, too, to note the difference between " first infection or childhood type of tuberculosis "—which " in practice is usually recognized by the presence of infiltration in some part of the lung field other than the apex "—and the " reinfection or adult type." About 75 per cent. of children under 5 years, contacts of sputum-positive cases (Group A), were tuberculin-positive, as compared with 30 per cent. among contacts to sputum-negative patients (Group B) ; the last figure was only slightly greater (and remained so until early adult life) than in non-contacts (Group C). *X*-ray lesions were discovered in 37 per cent. of Group A children (0 to 4 years), but in only 1.2 per cent. of Group B ; and this difference held good throughout childhood and adolescence. Approximately one-third of the Group A children acquired calcified nodules of the lungs or lymphatic glands recognizable during life ; the incidence of these lesions was far less in Group B, and still less, though still considerable, in Group C. (Five per cent. of persons with calcified foci failed to react to tuberculin.) Infiltrating lesions of the childhood type were numerous (17.4 per cent.) in Group A children up to 5 years, but were not found in Group B children of the same age ; later they became numerous in both groups, but disappeared in early adult life. Finally, lesions of the adult type first appeared in the age period 10 to 14 years, and before the age of 30 years were more frequent in contacts with sputum-positive than with sputum-negative cases ; later manifest disease of the reinfection type was found more frequently in the second group, " doubtless because in these families it pursues a more chronic course."

In the last of the three articles the authors have attempted, by determining the annual death rates and the mean frequency of demonstrable lesions and of manifest disease, to learn the probable fate of persons who, varying in age at the beginning of exposure, have been in contact with tuberculosis. Of those who had been exposed to sputum-positive (open) tuberculosis between birth and 9 years, 10 per cent. living from twelve to fourteen years after the beginning of exposure had acquired tuberculosis ; this figure was 2 per cent. when no tubercle bacilli had been found. When exposure to open tuberculosis first occurred between 10 and 14 years of age, 20 per cent. of those living ten to fourteen years afterwards developed tuberculosis. Lastly, among those first exposed to open tuberculosis after 15 years of

[1] *Amer. Journ. Hyg.*, 1935, xxii, 539.
[2] Ibid., 1935, xxii, 565.
[3] Ibid., 1935, xxii, 644.

age, 10 per cent. living from ten to fourteen years afterwards had acquired tuberculosis; the corresponding figure being 7 per cent. in those exposed to cases in whom no tubercle bacilli had been found. The authors conclude: "since in persons first exposed to tuberculosis after 15 years of age the frequency of infection, like that in early childhood under corresponding conditions, increases rapidly and far exceeds that of the general population, the adult type of pulmonary tuberculosis is evidently acquired by contact. This pulmonary tuberculosis of adult type is not the continuation of tuberculosis of childhood, but is an exogenous infection acquired in adolescence or adult life." Further evidence of this was obtained "by comparing mortality following exposure to tuberculosis with that of the general population. It increases continuously when exposure begins after 15 years of age, just as it does after exposure at an earlier age, and reaches a rate far in excess of the maximum death rate from tuberculosis in the general population."

There emerge from this detailed and prolonged investigation facts which, if applicable to this country, deserve the earnest attention of those responsible for preserving the health of the nation: apathy in regard to a disease which still kills 30,000 persons a year can never be justified. The highly contagious nature of open tuberculosis, to children and adults alike, is emphasized in no uncertain manner, as is the importance of frequent and adequate tuberculin testing and radiography in the handling of contacts. But the work of Opie and his co-workers does more than that; for it shows the significance and the need for treatment of patients in whom are found certain *x*-ray shadows, unaccompanied by signs or symptoms, which at present are dismissed too lightly. It also brings forward convincing evidence in favour of that much-discussed and controversial theory, the predominant role of exogenous infection in the development of pulmonary tuberculosis in adults. The importance of the social and economic aspects of the last fact is obvious, and needs no emphasis.

A BUDGET OF DISAPPOINTMENT

The year 1931 was an important one in the history of post-war Budgets. Before the second Finance Act of that year successive Budgets had shown a gradually improving position and a fairly steady reduction in the onerous burden of war taxation. When, however, the implications and dimensions of the financial slump were realized a new high tide level of Government demands on the taxpayer was established. Since then Mr. Chamberlain has striven valiantly, and as it seemed successfully, by reducing expenditure in various ways and notably by re-funding the war debt on a lower interest basis, to reduce expenditure and thereby taxation. In 1934 the standard rate of income tax was reduced from 5s. to 4s. 6d., and last year some further relief was given less directly. Twelve months ago the position seemed to be that trade was improving, and consequently the amount of the Government's levy in one form of taxation or another was increasing also, and there were grounds for expectation that the Budget of 1936 would see a return to rates of tax fairly comparable with those in force prior to the 1931 crisis. These hopes have been extinguished, and probably Mr. Chamberlain feels the disappointment more than anybody.

The simple facts are that external circumstances have proved too strong, and the generally recognized necessity for a large increase in the expenditure on the Defence Services has thwarted the Chancellor's desire to provide further relief for the long-suffering taxpayer. Nor is that the worst. Judging from that reliable criterion a unanimous general press, the expectation of the public right up to the announcement of the Budget proposals was that the natural increase of taxation in a time of improving trade would be enough to meet the essential demands for further revenue. Unfortunately that was a too hopeful reading of the situation. As a nation we pride ourselves on paying our way—and believe that in the long run it is the way that pays—and Mr. Chamberlain is probably right in interpreting the natural view as being opposed to a policy of throwing the "whole of this burden on to the shoulders of those who come after us." But the result is that existing rates of taxation are inadequate to provide for any substantial contribution towards this special expenditure. Something can be done, and is to be done, in the direction of reducing "legal evasion" of income tax and surtax, though the small reliefs given to married taxpayers and parents will cost about one-half the amount gained by this means. In the result the standard rate of income tax has to be increased by 3d. to 4s. 9d. in the £, and another 2d. a pound put on tea.

It is undoubtedly, as Mr. Chamberlain himself said, a disappointing Budget. There are, of course, one or two aspects from which some comforting reflection can be derived. For instance, the one suggested by the Chancellor's observation that "our safety is more to us than our pockets," and there is a little consolation in the fact that the money is to be spent in the country and should give some stimulus to trade—though that demands an altruistic point of view which the average taxpayer finds a little difficult when writing out a cheque in favour of "The Commissioners of Inland Revenue." It is a sharp object-lesson in the interdependence of internal finance and international events. Our readers may have various views as to the propriety or otherwise of the Government's actions in the international sphere, but there can be little doubt about the necessity for immediate improvement in the organization of National Defence—and a Budget of disappointment is the unavoidable result.

HISTOLOGICAL STUDIES OF THE THYROID GLAND

The precise mechanism by which the thyroid elaborates its characteristic secretion and discharges it into the circulation has been very puzzling to physiologists and pathologists alike, and even now complete agreement has not been reached. The older view—that the epithelium of the vesicles secreted the colloid into the lumen of the vesicle, and that the active product then passed through the interstices between the epithelial cells into the lymphatics—has long been discarded. Little more satisfying was the idea that the epithelial cells could assume both a secretory function leading to storage of colloid and an excretory function leading to discharge of the colloid into the blood. Theories attempting to correlate the lymphocytic masses sometimes seen in the gland with the secretory phase of its activity carry little conviction. More recently the Belgian investigator, Thomas, has put forward a theory based upon careful histological studies of a large mass of material. This theory attempts to distinguish between the functions of the different epithelia which are histologically recognizable in the thyroid vesicles. The flatter type of cubical epithelium is held to possess poor secretory activity, and cylindrical epithelium of palisade type is regarded as composed of excretory cells which render colloid soluble and readily pour it out into the blood or lymphatics. As the activity of the cylindrical epithelium proceeds the vesicles, from being more or less round and regular, become irregular, and pseudo-papillae are formed: the epithelium becomes indented and daughter vesicles may separate off. These daughter vesicles now become lined with broad cubical cells, which appear to be very active in elaborating colloid, so that these vesicles soon swell up to the dimensions of a colloid-filled vesicle, the epithelium meanwhile reverting to the flatter and inactive kind. The cycle of activity in the thyroid thus seems to be regarded as a cycle of changes in morphology and function of the constituent epithelium. Maximum excretory activity is associated with the cylindrical cell, maximum storage of colloid with the large cubical cell, and absence of colloid function with the flat cells of almost endothelioid type. Criticisms of such a theory are not difficult to formulate if absolute rigidity is insisted on in the matter of separation of the two functions of secretion and excretion. Thus Bastenie[1] points out that excretory function cannot be ascribed exclusively to the high cylindrical cells, since during the reabsorption of haemosiderin after an intravesicular haemorrhage one can readily observe granules in the cells regarded by Thomas as exclusively secretory, indicating, therefore, that they can assume excretory activity. The same author also points out that there is no evidence of successive phases of secretion and excretion in the gland of Graves's disease: only excretion appears to take place. Further, it is often found that goitres with adenomata presenting a great deal of the so-called excretory cells of Thomas may be associated with an apparently normal gland or even with hypofunction. Bastenie also points out that injections of thyrotropic hormone into certain animals may lead to the histological picture predominantly corresponding to the excretory phase of Thomas without any evidence of a metabolic kind of increased delivery of thyroid hormone into the circulation. In spite of these criticisms there seems good reason to accept the main principles of Thomas's theory without insisting too strictly on an absolute specialization of function of the different types of epithelium. The heterogeneous mixture of cells and vesicles ordinarily presented in a section of the thyroid may be regarded as resulting from alternations of "bursts" of elaboration and excretion of colloid. The so-called "colloid state" of the gland probably represents what may be regarded as normality: this homogeneous condition is replaced by that of lobular fragmentation, and in the fragments or daughter vesicles the balance occurs between reserve or storage secretion and active secretion or excretion.

Bastenie adduces arguments against the conception of "toxic adenoma." It is held that hyperthyroidic nodular goitres are of three kinds: (*a*) glands with hyperplastic parenchyma and colloid nodules; (*b*) glands with colloid parenchyma and colloid nodules; and (*c*) glands with colloid parenchyma and hyperactive parenchymatous nodules.

[1] *Le Scalpel*, 1935, xliv, 1371.

THE BLIND IN THE UNITED STATES

A most elaborate and complete report on the condition of the blind in the United States of America has been written by Mr. Harry Best.[1] Here is collected a mass of information regarding the causes of blindness, the social status of the blind, and what is being done for the blind. The work deals solely with American conditions, and to British readers it will be of interest as a means of comparison between the state of affairs in the two countries. Mr. Best has aimed at making a social survey. He is no longer content with the attitude of compassionate "human interest" in the blind. Until now the only direct public care has been in the creation and maintenance of schools for children, and some form of alms-giving for the older blind. He demands a complete revision of ideas regarding the existence of blindness. He asks whether in a well-ordered State there should be such a thing. In former times the inevitability of a certain proportion of blind was accepted; as advance has been made in medical practice, however, it has appeared more and more clearly that from certain diseases or injuries blindness should not have been permitted to result. For the most part its causes are relatively less obscure than are those of certain other defects or infirmities of men, so that blindness may be held to be one of the first of such defects that should be eradicated. Put bluntly, the figures show that perhaps well over two-thirds, perhaps three-fourths, of blindness might have been avoided by means known to us. Loss of sight due to ophthalmia neonatorum, infectious fevers, and trachoma certainly belongs to this class. Cataract and glaucoma are increasingly shown to be amenable to timely treatment. Much of the blindness caused by accidents, while possibly arising from industrial conditions which are beyond the power of the individual, should be susceptible to control by collective means. The increase of statutory action in this respect is encouraging. Mr. Best holds that in regard to blindness which may be called hereditary the matter is a part of the general question of heredity, of which our knowledge is slight;

[1] *Blindness and the Blind in the United States.* By Harry Best. New York: The Macmillan Company. (28s.)

but so far as we can find the amount of blindness that is inherited is not on the whole great. Estimates of the number of blind in the United States are uncertain. The figure is put at 100,000. Of these by far the greater number are in adult life ; blindness is found to occur with increasing frequency with advancing years. Schools for the blind were started as a result of private generosity and philanthropy, but now for the most part the education of the blind is a service of the States, but comparatively little has been done for the adult blind. Up till now they have been expected to look after themselves. But, as the author shows, they are unable to do this. A certain number of them do make a success of life: those who were well employed before disaster overtook them and who are able to continue their work ; and some few who by dint of superior gifts and perseverance have been able to overcome their initial handicap. But the " gainfully employed " among the blind are few, and those who can actually earn a livelihood form a still smaller proportion. The statistics show that not more than one-thirteenth of the entire number over 10 years of age are able to maintain themselves ; and of those over 20 years only one-third are self-supporting, either in whole or in part, and not more than one-sixth entirely so. It is because of these facts that certain of the States are introducing pension schemes for the blind.

THE HYGIENIC CONTROL OF MILK

At a time when public interest in nutrition is widespread, and milk is being lauded as the ideal food, it is opportune to review the present status of milk hygiene and control. The reports published in the January number of the bulletin issued by the Office International d'Hygiène Publique at Paris deal with the milk situation in Great Britain and Ireland, France, the United States, and Canada. Taken as a whole these reports draw a depressing picture. It would indeed require the genius of Mr. H. G. Wells to bring out to the full the almost tragic failure of co-ordination, the wasted effort, the human frailty, and the self-centred individualism that mark the production and distribution of this most necessary article of human nutrition. Such a pen would also be needed to give an adequate outline of the long fight of the public health services against the forces of ignorance, prejudice, and economic interest in the struggle to provide the public with a clean, safe milk. M. Thieulin, describing the deplorable conditions prevailing in France, puts his finger on one of the most important difficulties in the way of progress—namely, public ignorance and apathy. Milk to the public is just " milk," and until the man in the street realizes the differences in cleanliness and safety between various grades it will be impossible to provide any adequate stimulus to producers and distributors for increasing the supply of high-quality milk. The same lesson is preached in the report of the Medical Research Council for the year 1934–5. " In general, any curative form of therapy can be readily adopted by practising doctors, whereas discoveries in preventive medicine stand in another category and usually require great public interest and legislation before they can become effective, especially when they touch, as they usually do, the economic interests of the country." Sooner or later the public will have to be told the real truth about milk. Not until it realizes this will there be an effective demand for a complete reorganization of our present system of supply and control. There are, however, a few bright splashes in the picture. Pasteurization is undoubtedly making headway, and the voluntary decision of the Certified Milk Producers of America last June to permit of the pasteurization of certified milk must be regarded as a milestone in the progress towards a high-quality safe milk supply. Against this must be put the forty-two milk-borne epidemics occurring in the United States during the year 1934. The progressive adoption of the Federal Milk Ordinance and Code will be greeted with satisfaction by those who are acquainted with its well-conceived plan, and it is particularly gratifying to learn that Chicago, which has the remarkable history of excluding at a single legislative stroke the admission to the city of all milk from non-tuberculin-tested herds, has now decided to adopt the Federal Code. A further index of progress is afforded by the introduction of a scheme for the gradual eradication of contagious abortion in the United States. In this country we may perhaps take heart from our colleagues on the other side of the Atlantic, whose faith has never wavered in their determination to provide the public with a milk free from the risk of causing disease and death.

MEDICAL GEOLOGISTS

Dr. R. G. Wills makes a useful contribution to the many-sidedness of doctors in his recent address as president of the Liverpool Geological Society. He calls it " The Contribution of British Medical Men to the Foundation of Geology."[1] He notes that of the first thirteen members of the Geological Society, founded in 1807, five were medical men. The widespread influence of John Hunter in all scientific research appears in the fact that Sir Everard Home, his brother-in-law, John Parkinson, who wrote the " Essay on Shaking Palsy," now called Parkinson's disease, and Sir Richard Owen owed their interest in geology directly to his prompting. He might also have added to the list the name of John Whitaker Hulke, who was president of the Geological Society and a Wollaston medallist, for Hulke was undoubtedly a disciple of John Hunter, though removed from him by at least two generations. Oxford, too, was responsible for a small but distinguished school of geologists. It seems to have arisen spontaneously when Dr. Kidd was teaching chemistry before he became regius professor of medicine. Buckland, the two Conybeares, and Daubeny were the result. John Woodward and G. A. Mantell (who was an honorary Fellow of the Royal College of Surgeons of England) are well recognized, but it is interesting to learn that Babington and Bright, physicians to Guy's Hospital, and Charles Murchison, physician to St. Thomas's Hospital, were geologists as well as medical men. Dr. Wills, had he chosen, might have gone still further back, for Dr. Martin Lister (1638–1712) took part in the battle of the Vulcanists and Neptunists, and if he had ventured abroad there was Niels Stensen (1638–86), known to us as the discoverer of " Steno's duct," who was bold enough to assert that many rocks existed before the creation of plants and animals.

[1] *Proceedings of the Liverpool Geological Society*, vol. xvi, Part IV. 1935. Copies, 5s. each, from Honorary Secretary of the Society, Colquitt Street, Liverpool.

FIG. 1.—Foetal adenoma of thyroid (high power). Interlacing columns of cells with relatively little colloid.

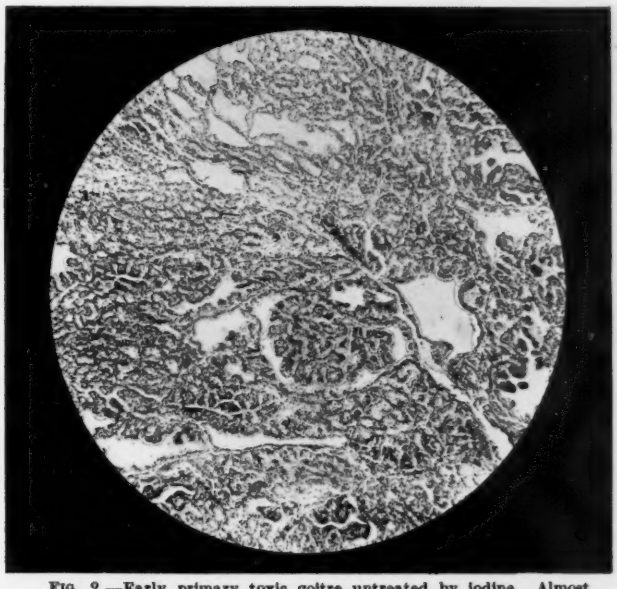

FIG. 2.—Early primary toxic goitre untreated by iodine. Almost complete absence of colloid storage with empty alveoli lined by columnar cells.

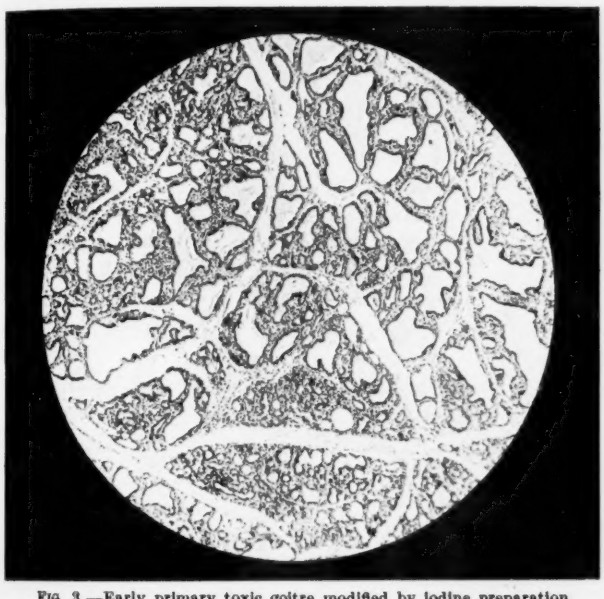

FIG. 3.—Early primary toxic goitre modified by iodine preparation. Note the increased colloid storage.

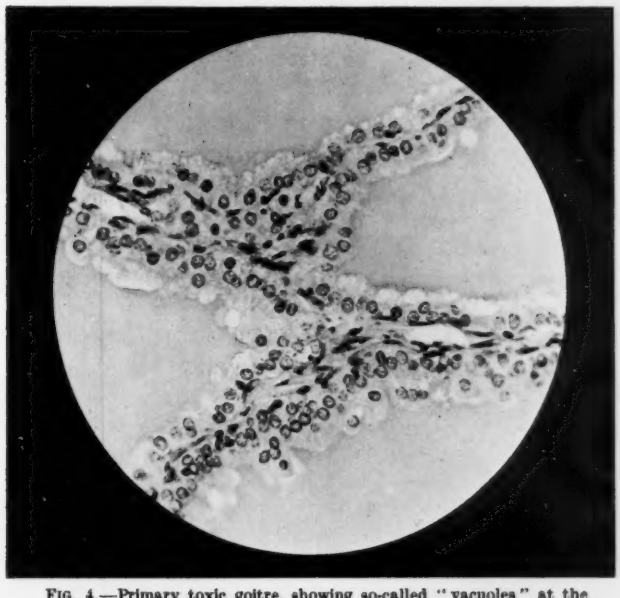

FIG. 4.—Primary toxic goitre, showing so-called "vacuoles" at the periphery of the alveoli between the colloid and the lining epithelium.

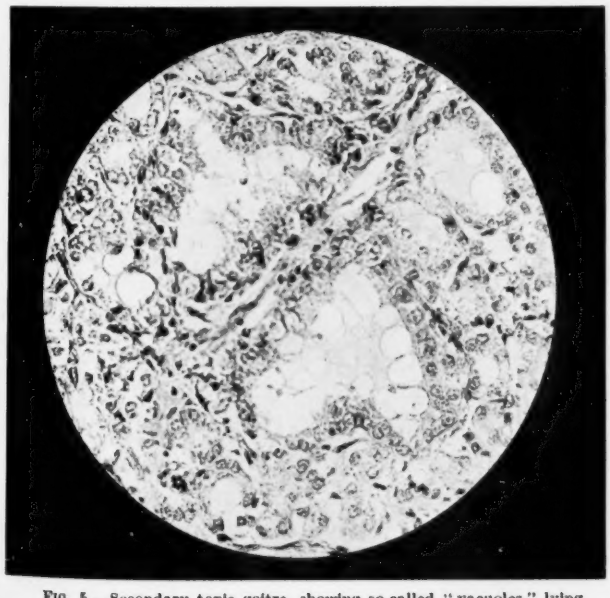

FIG. 5.—Secondary toxic goitre, showing so-called "vacuoles" lying again between the colloid and lining epithelium of the alveoli.

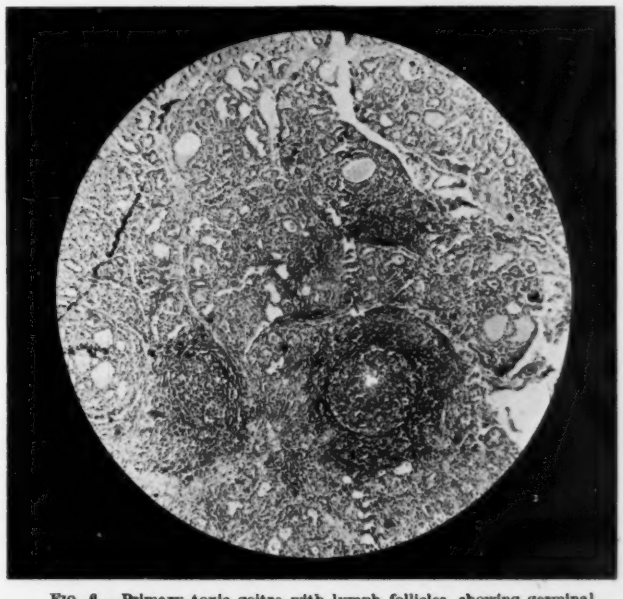

FIG. 6.—Primary toxic goitre with lymph follicles, showing germinal centres.

FIG. 1.—Intracapsular fracture of neck of femur. Antero-posterior view.

FIG. 2.—Fracture reduced, with Michel clips in position.

FIG. 3.—Lateral view, showing guide anterior and parallel to neck, and Michel clip posterior to neck.

FIG. 4.—Lateral view with guide in bone parallel to the first guide.

FIG. 5.—Antero-posterior of guide in position in bone. Note calibrations in centimetres on guide.

FIG. 6.—Antero-posterior view of nail in position.

FIG. 7.—Lateral view of nail in position.

JULIUS H. KRETZMAR AND R. A. ROBERTS: ALBERS-SCHÖNBERG'S DISEASE

FIG. 1.—Female, aged 21 years. Note the wide separation of the eyes, indicating some degree of hypertelorism, the prominence of the nasal bone, the left-sided facial paralysis, and the massive lower jaw.

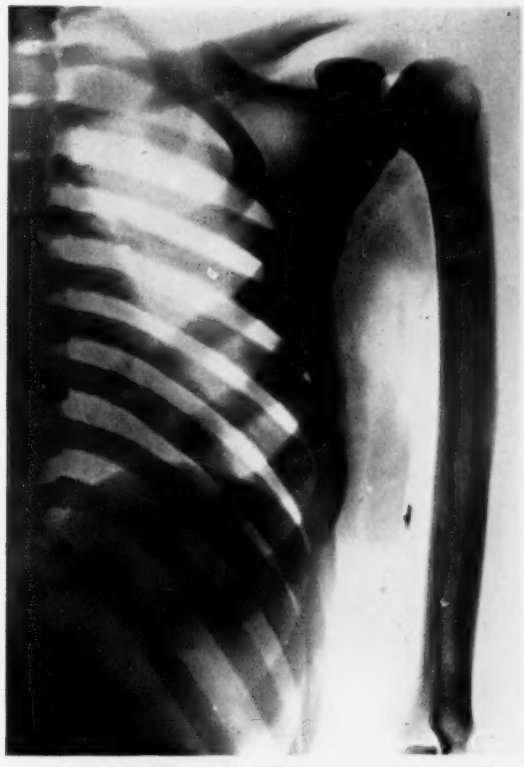

FIG. 2.—Female, aged 21 years. Radiograph of left chest and left humerus. The structure of the humerus illustrates the thickening of the cortex and the relatively small size of the medullary canal.

FIG. 3.—Female, aged 21 years. Radiograph of hand. There are appreciable alterations in the outlines of the metacarpals as the result of the cortical thickening.

RUBY O. STERN, J. McLEMAN, AND B. F. M. BOND: DIAGNOSIS OF PHYSICAL DISORDERS IN THE INSANE

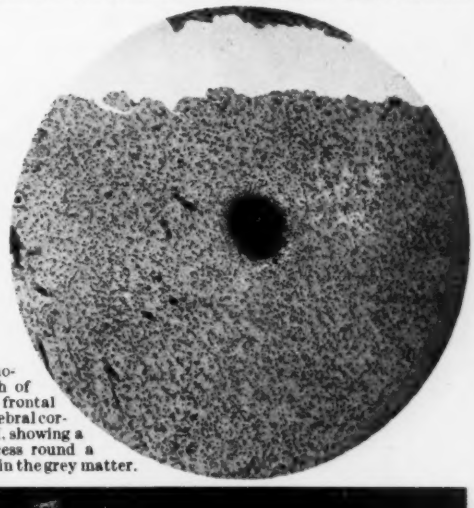

FIG. 1.—Photomicrograph of section from frontal region of cerebral cortex of Case I, showing a miliary abscess round a blood vessel in the grey matter.

FIG. 2.—Photograph of kidneys from Case II. The small amount of kidney tissue present at the upper pole of left kidney was the only recognizable kidney substance in the two organs.

GAWAD HAMADA: MYOSITIS OSSIFICANS MULTIPLEX

FIG. 1.—Note the immobility of the whole spine and bony masses scattered over the posterior aspect of the chest wall and about the right ischial tuberosity and both elbows.

FIG. 2.—The right shoulder is fixed to the chest wall and the right hip is ankylosed at 125 degrees. Note the projecting bony mass just below the right scapula.

W. LEES TEMPLETON: BRODIE'S ABSCESS IN THE HEAD OF THE RADIUS

FIG. 3.—Radiograph of pelvis, showing bony mass extending from right pubic bone to upper part of right femur.

Radiograph showing increase in diameter of radius just below the head with an area of rarefaction in centre of bone.

BULLET WOUNDS OF THE ABDOMEN

The visitor to the surgical wards of some of the American hospitals cannot but be impressed by the numbers of cases of gunshot wounds which they contain in comparison with the surgical wards in similar types of hospital in this country. This was the experience of surgeons when visiting New York hospitals in 1922, and there is reason to believe that to-day the difference would be even more apparent, as it is since then that gangsters have become so active, while admissions of gunshot cases in this country are probably fewer than ever. In a recent article on "Peace Time Bullet Wounds of the Abdomen"[1] H. A. Oberhelman and E. R. Le Count, who died in August, 1935, give a very comprehensive analysis of gunshot injuries of the abdomen. They were able to collect reports of 1,494 patients, of whom 789 died—a mortality of 53 per cent. In their own series of 301 cases at the Cook County Hospital, Chicago, there were 185 deaths, a mortality rate of 61 per cent., so that it would seem that when an individual receives a bullet wound in the abdomen he has only about a 40 per cent. chance of recovering. In reviewing the history of their subject, the authors state that the introduction of laparotomy for bullet wounds is an American contribution to surgery, notwithstanding the fact that the first recovery from such operation was reported by Kocher in 1893. As early as 1847 Newell of New Brunswick had on the day following a shooting successfully performed a limited laparotomy and removed shot, a gun wad, and pieces of clothing from a patient. Oberhelman and Le Count draw attention to the difference between war-time abdominal woundings, many of which were due to shell bursts, and peace-time woundings, the majority of which in their experience are due to revolver or pistol bullets. The mortality from shotgun wounds is high, and, as might be expected, multiple bullet wounds from the rapid discharge of automatic pistols, revolvers, or machine-guns carry a high mortality rate. Bullets entering the sides of the abdomen cause more deaths than those entering the front or back, and those entering the front more than those entering the back. It is not always an easy matter to identify all of the visceral perforations when the abdomen is opened on the operating table. One patient had fifteen perforations, and of these six were found at necropsy. Of the patients who recovered fourteen perforations was the highest number found in any one patient. Those who die of bullet wounds in the first twenty hours after injury die from haemorrhage and shock; after this interval death is usually due to generalized peritonitis and its complications. Since haemorrhage from damaged blood vessels and peritonitis from leaking intestinal contents account for most of the deaths surgical repair is called for as soon as possible. Nearly 80 per cent. of the cases admitted to the Cook County Hospital had laparotomy performed within three hours of the shooting, and the authors find that the mortality rate rises with delay beyond this. With few exceptions the anaesthetic used was ether. They have found that resection operations, whether partial or complete, on abdominal viscera, are only very rarely required. Drainage after operation was resorted to in thirty out of 108 cases of patients with wounds of only one viscus; of 182 patients with wounds of multiple viscera drainage was adopted in fifty-eight. The authors point out that the question of abdominal drainage is still a subject for controversy among surgeons, but they conclude that in these gunshot cases "apparently drainage did not have a large influence on the mortality." This is a type of surgery of which we fortunately see very little in our country, and may this long continue to be so, but the points raised as a result of the careful analysis of the wide experience of the authors of the paper to which we have referred are well worthy of consideration by British surgeons.

[1] *Arch. of Surg.*, March, 1936, p. 374.

WILLIAM B. COLEY

Dr. William B. Coley, emeritus surgeon-in-chief of the New York Hospital for Ruptured and Crippled, died last week at the age of 75. Only a year ago the Royal College of Surgeons of England conferred upon him its honorary Fellowship, and six months later he lectured before the College, afterwards visiting Glasgow at the invitation of Professor Archibald Young to lecture in the University on the diagnosis and treatment of bone sarcoma. Coley was a surgeon of high reputation, but his name will be remembered chiefly by reason of his work on the treatment of certain forms of malignant disease by mixed erysipelas and *Bacillus prodigiosus* toxins. Towards the end of the last century he began the long series of investigations whose outcome was "Coley's fluid" or "Coley's toxin," which in his hands yielded remarkable results, notably in sarcoma. By 1911 he was able to report sixty-five cases of inoperable sarcoma in which the tumour disappeared as a result of his treatment. In later years Coley concentrated more particularly on the treatment of sarcoma of bone and certain other bone tumours, and latterly combined his toxin treatment with *x*-ray therapy.

The Dr. Alexander Black Lecture will be delivered before the Royal College of Physicians of Edinburgh by Dr. J. D. Gilruth on Friday, May 1st, at 5 p.m. His subject is "The Legend of Chiron, the Father of European Medicine."

The annual session of the American Medical Association will be held next month in Kansas City, Missouri. Lord Horder will attend the meeting as a foreign guest and delegate from the British Medical Association, and read a paper before the Section on Practice of Medicine on May 12th.

We much regret to learn as we go to press of the death, on Tuesday, April 21st, of Dr. Henry J. Cardale, chairman of the London Panel Committee for the past twenty-two years and a member of the Insurance Acts Committee for the past fourteen years. An obituary notice will appear in the next issue.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the blood and blood-forming organs met with in general practice.

TREATMENT OF HAEMORRHAGIC DISEASES

BY

H. LETHEBY TIDY, M.D., F.R.C.P.

PART I

The haemorrhagic diseases include various conditions of which the pathology and treatment differ widely. The sole constant feature is a tendency to haemorrhage, though this differs in its nature and causation in the various groups. In discussing the treatment it will be assumed that an ordinary blood count is available, including the number of red cells and the percentage of haemoglobin, and the number of white cells, with a differential count. The following classification of the haemorrhagic diseases will be adopted.

A. PRIMARY NON-HEREDITARY HAEMORRHAGIC DIATHESIS

1. Purpura haemorrhagica: (*a*) acute; (*b*) chronic.
2. Anaphylactoid purpura (including Henoch's purpura and purpura rheumatica).

B. SYMPTOMATIC HAEMORRHAGIC STATES OR SECONDARY PURPURA

The important causal factors under this heading are: (i) infectious diseases; (ii) infections with pyogenic cocci; (iii) drugs, including benzol derivatives, gold preparations, salvarsan; and (iv) sensitivity to proteins.

C. HAEMORRHAGIC DEFICIENCY DISORDERS

1. Scurvy.
2. Melaena neonatorum.

D. HEREDITARY HAEMORRHAGIC DISORDERS

1. Haemophilia.
2. Hereditary haemorrhagic diathesis, including fibropenia and types which are intermediate with haemophilia.
3. Hereditary capillary telangiectasia.

Primary Non-hereditary Haemorrhagic Diathesis

It may be said, briefly, that the essential factor in the causation of the haemorrhages is undue permeability of the capillary endothelium, which may be chronic, sporadic, or intermittent. The cause of this increased permeability is uncertain, but it is not directly due to diminution of blood platelets. These may be completely absent without the development of haemorrhages; the term "essential thrombocytopenia" is thus a misnomer, and should not be used. The increased permeability may permit the passage either of plasma only, or of blood cells, or mainly of plasma with a small amount of blood. If plasma alone escapes the resulting condition is urticaria, which will not be further referred to. If blood escapes the resulting condition is purpura haemorrhagica. If plasma escapes, with some amount of blood, the resulting condition is anaphylactoid purpura.

The clinical and laboratory characteristics of the haemorrhagic diathesis during periods of activity are:

1. *Haemorrhage.*—Haemorrhage from the mucous membranes and into the superficial and deep tissues, constituting purpura, petechiae, ecchymoses, and haematomata, may be at any site; cerebral haemorrhage has often been the final cause of death. It is now known that certain cases of repeated haemorrhage from a single site, such as repeated epistaxis, haematuria, and menorrhagia, belong to the haemorrhagic diathesis.

2. *Prolongation of the Bleeding Time (Duke's Test).*—This test is the most important and sometimes the sole evidence that the haemorrhagic tendency is active at the moment of examination, and while the test is easily performed it is essential that it should be done properly. A deep, sharp prick is made in the ear with a cutting needle, and the blood is soaked off with filter paper or soft blotting-paper every twenty seconds. No pressure must be used. In normal persons the bleeding ceases in one to two and a half minutes. When the haemorrhagic diathesis is active it is prolonged to many minutes or even an hour. A normal bleeding time does not in itself prove that the individual is not a subject of the haemorrhagic diathesis, but only that there is no active tendency to haemorrhage at that moment.

3. *Capillary Resistance Test (Rumpel-Leede Test).*—This is performed by constricting the arm with a sphygmomanometer band at a pressure of 70 mm. for two minutes. When the haemorrhagic diathesis is active a crop of petechiae appears below the band. This test may be difficult to estimate if there is already extensive purpura. It becomes negative when the active tendency has subsided, but usually persists longer than the prolongation of the bleeding time.

In addition to these features the blood platelets tend to be reduced in number, and in serious cases may be almost or completely absent. Even complete absence is not a proof, however, that the haemorrhagic tendency is active at the moment, but must be regarded as evidence that if haemorrhages do arise they are likely to be severe. There are no constant or characteristic changes in the blood cells. Anaemia will inevitably be present if the haemorrhages are severe or chronic. Leucopenia is evidence of exhaustion of the bone marrow, which may be temporary or permanent.

Acute Purpura Haemorrhagica

This may be seen at any age, though it is commonest in childhood. The onset is sudden and progress rapid, but rarely attains the severity of the "purpura fulminans" of the symptomatic purpuras, for which there is an obvious predisposing cause.

Treatment is local and general. It is important to remember that the majority of cases recover even in the absence of any specific treatment, since the acute haemorrhagic tendency may cease as suddenly as it began. After recovery the patient may remain free from all symptoms for many years, or even throughout life.

Local treatment is only of use for checking gross haemorrhage from a mucous membrane, and should be carried out in accordance with ordinary procedures and the special methods described under haemophilia. General treatment aims at aborting the general haemorrhagic tendency, temporarily or permanently. The measures which need careful consideration are blood transfusion and splenectomy.

BLOOD TRANSFUSION

Transfusion may end temporarily the active haemorrhagic tendency, apart from the benefit which the anaemic patient will derive from the volume of normal blood. It is better to transfuse moderate quantities, repeated if necessary, than to give a large amount and risk a severe reaction.

Blood transfusion is indicated in all cases of acute purpura haemorrhagica and should be performed as soon as the diagnosis has been made, as the future course cannot be predicted. The blood must be carefully grouped and cross-grouped with the prospective donor's blood. Serious reactions are not common, though more frequent than in normal individuals, but it is proper to run the risk of their occurrence. Occasionally in severe cases the transfused blood is haemolysed rapidly and the haemoglobin excreted even after careful grouping. The amount injected should be about 300 c.cm. for an adult, and there is no objection to using citrated blood. The bleeding time must be watched subsequently, and if there is no evidence of a definite reduction in twelve hours the transfusion should be repeated. If a skin incision has to be made in order to find a vein it is advisable not to put stitches into it as a troublesome haematoma usually forms.

Auto-agglutination in the patient's blood is occasionally a difficulty, though it is more common in the symptomatic group. In these circumstances the patient's serum usually agglutinates all other bloods when tested in the usual manner, and the group cannot be ascertained. Auto-agglutination, however, is confined almost entirely to reactions at room temperature, and does not take place at blood temperatures. If there is difficulty in estimating the reaction at a temperature of 37° C. a Group IV donor should be employed ; this has been done safely on several occasions, although the patient's blood may contain haemolysins which rapidly haemolyse the donor's blood.

SPLENECTOMY

There can be no doubt that a successful splenectomy brings to an end the haemorrhagic tendencies in a high proportion of cases, but nevertheless the decision to operate must not be made lightly.

Splenectomy in otherwise normal individuals, as, for example, following trauma, is followed by a rapid rise of the blood platelets and the leucocytes. The platelets rise to their maximum in a few days and return to normal in about three weeks. It is worthy of mention that a rise of platelets follows any major operation, but is less rapid than that which follows splenectomy. After splenectomy for purpura haemorrhagica the rise in platelets may be very rapid and marked, and if the number has been within normal limits at the time of operation may reach a level at which there is a serious danger of thrombosis, which has been observed in several cases. In acute purpura haemorrhagica of great severity it may be said that the platelets are always definitely diminished in number, and the risk of thrombosis does not arise. If the platelets are found to be within normal limits with the clinical manifestations described it is more probable that the case belongs to the symptomatic or hereditary group.

In deciding if splenectomy should be performed in a case of primary acute purpura haemorrhagica several factors must be taken into consideration.

1. Many patients recover without specific treatment, since the active haemorrhagic tendency may stop at any moment, and these patients may subsequently remain free of any symptoms for many years or throughout life.

2. The operation has a high mortality, and it must be decided whether or not the patient is so ill that the chance of surviving such an operation is almost hopeless.

3. The previous history must be carefully considered in order to make certain, if possible, that the patient really belongs to the group of primary non-hereditary haemorrhagic diathesis.

4. Blood transfusion must always be tried first, but if at the end of twenty-four hours, after two transfusions, the bleeding time is still excessive and shows no sign of returning to normal then, but not before, the question of splenectomy must be seriously thought of. The wait of twenty-four hours is fully justified, for it will undoubtedly save some patients from an operation which they would be unlikely to survive.

When this position has been arrived at and the factors already mentioned reviewed splenectomy is justified only if the haemorrhages are continuing, the haemoglobin percentage is falling, and the general condition is deteriorating. There are some further subsidiary points which are to be taken into consideration. Leucopenia suggests that the bone marrow is exhausted temporarily, and this would weigh in favour of operation. A high platelet count would be a distinct indication against splenectomy. It is best to come to a decision on the conditions existing at the moment, and not to be swayed by the history of previous attacks. It is difficult to know in which direction these should weigh, for if a patient has survived previous attacks he may well survive the present one, although he would be exposed to the risk of recurrence in the future. In the case of a child who has recovered from previous attacks the parents would rarely consent to an operation which could be performed with much less risk when the acute attack had passed.

With regard to the operation, splenectomy should be undertaken if possible. Adhesions may render this difficult and the operator may have to be satisfied with ligation of the splenic vessels, the results of which operation are still uncertain. A blood transfusion should always be given at the time of operation, but it is not right to delay transfusion because the question of splenectomy may shortly arise.

RESULTS OF SPLENECTOMY

It is difficult to estimate with exactitude the dangers and results of splenectomy. Many of the patients who die after the operation would undoubtedly have died in any circumstances, but splenectomy is a serious operation in acute purpura haemorrhagica and is undoubtedly associated with a high operative mortality. It must also be remembered that many patients recover without operation, even when *in extremis*.

In favourable cases the haemorrhages cease with extraordinary rapidity after operation. It is said that haemorrhages can be seen to cease immediately the spleen is removed. The blood platelets rise rapidly, undoubtedly due to flooding of the circulation with reserves from the bone marrow, as happens after splenectomy for other conditions. In the course of two or three weeks the platelets fall to an ordinary level. Recovery from the operation may be uneventful and the haemorrhages completely disappear, and no subsequent symptoms may arise for a course of years. Nevertheless, it is known that even in such cases serious haemorrhages may recur after long intervals of freedom.

Occasionally the platelets rise to a high or a normal level with cessation of the haemorrhages and then subsequently fall to a low figure. Haemorrhages may not immediately recur, but they tend to do so later. This course is, however, more common in the chronic than in the acute form. In a few cases the blood platelets entirely fail to rise. In spite of this the haemorrhages may cease for a few days, but they then recommence, usually with a rapidly fatal termination.

In addition to blood transfusion and splenectomy many other methods of treatment have been advocated and supported by a record of cures, but in considering these the tendency to spontaneous recovery must be borne in mind.

OTHER METHODS OF TREATMENT

Good results have been claimed for vitamin C in the pure crystalline form of cevitamic acid. If this is correct it brings the primary haemorrhagic diathesis into line

with scurvy, which is not impossible ; this method of treatment needs further testing. Cevitamic acid must be injected intravenously, being admittedly useless by the mouth, and the dose should be 150 mg. daily until the haemorrhages cease. This method is worthy of trial together with blood transfusion. There is no evidence that the injection of whole blood or of horse serum intramuscularly is of any value.

Several attempts have been made to use snake venom, the venom of certain snakes being coagulant, and good results have been claimed. Antivenin serum, prepared by immunizing horses against the venom of certain snakes, particularly the genus *Bothrops*, has been injected intramuscularly in 10 c.cm. doses. Another method has been the intradermal injection of filtered diluted snake venom. The venom of the copperhead snake has been tried in dilutions of 1 in 3,000 and 0.1 c.cm. injected daily for several days. The number of recorded cases is small, but it is not impossible that snake venom may prove helpful.

Attempts have been made to "block" the reticulo-endothelial system by the injection of various substances. The most recent method is by the intravenous injection of 10 c.cm. of a 1 per cent. solution of Congo red. It is known that such injections raise the number of blood platelets experimentally in animals, though the amount used has been much larger than is recommended for administration to human beings. Liver extracts in any form are entirely useless.

During convalescence the treatment should be on common-sense lines. The diet should contain a sufficiency of vitamins, and iron will be indicated for the treatment of the anaemia. All septic foci should be appropriately treated.

Chronic Purpura Haemorrhagica

The problem of treatment in this group differs essentially from that in the acute group, since there will be ample time to consider the appropriate measures. There will be no expectation that the tendency to haemorrhage will stop permanently. When beginning in childhood it may diminish with advancing life, but this is not invariable. In all cases septic foci should be carefully treated. The results of splenectomy have been satisfactory, and therefore an important question to decide is whether or not splenectomy is indicated. The operative mortality is about 8 per cent., although some surgeons have reported series with lower death rates.

Many (but not all) of the patients on whom splenectomy has been performed have remained free from all symptoms over a course of years. In some cases, however, the haemorrhages continue in a slighter degree for some weeks or months before ceasing ; in others the haemorrhages continue permanently with diminished severity. It is important to note that some of the patients in whom the results have appeared entirely successful, no haemorrhages developing for several years, gradually return to a severe haemorrhagic state. A small proportion of cases show no benefit, but this is exceptional. Prognosis is difficult, and while the results are, in general, satisfactory the possibility of a less successful termination must be borne in mind and put before the patient or those responsible.

INDICATIONS FOR SPLENECTOMY

The first question that will arise is whether the severity of the condition is such as to allow life to continue without serious impediment to reasonable activities and without risk in the near future, in the absence of operation. The manifestations may have been so mild over a course of years and the general condition may be so good at the time of examination that the risk of an operation would clearly be unjustifiable, but it should be remembered that the question may need to be reconsidered in the future. If operation cannot be dismissed on these grounds other circumstances which must be considered are: the age of the patient and the general physical condition ; the previous history ; the extent of the haemorrhages and their duration ; evidence of increasing severity ; the degree of anaemia ; and whether the white cells are increased or decreased. With regard to the last point, leucopenia is evidence of exhaustion of the marrow, which may be temporary or due to advancing aplasia. Permanent leucopenia is a serious sign, for it will increase the risk of operation ; on the other hand, it is evidence that the bone marrow is unequal to the demands made upon it, and it is therefore best to regard leucopenia as favouring splenectomy. If there is a definite leucocytosis then the bone marrow is able to react and the decision is of less urgency. The size of the spleen is not an important factor. If the number of platelets is below 100,000 per c.mm. it should weigh in favour of, and if above 150,000 it should weigh against, splenectomy. In the latter case there is a risk of subsequent thrombosis, and in the former the farther the number falls below 100,000 the greater evidence is it of the activity and severity of the haemorrhagic tendency.

ESTIMATING HAEMORRHAGIC ACTIVITY

The bleeding time and the capillary resistance test must be recorded, a great prolongation of the bleeding time being an important sign. These tests are a measure of the activity of the haemorrhagic tendency at the time of examination, and may be valuable as evidence that it can attain a high degree of severity. But in quiescent periods the tests may be normal, and this must not be regarded as an indication that serious haemorrhages will not occur.

A case of chronic purpura haemorrhagica must be watched, the various examinations repeated, and the decision as to splenectomy based on observations over a satisfactory period. Only rarely is it justifiable to decide to operate on the strength of a single examination. The risk of operation will be less when the bleeding time is normal.

Blood transfusion cannot have more than a temporary effect on the haemorrhages, but may benefit the anaemia considerably in chronic purpura haemorrhagica. Blood transfusions repeated from time to time may be sufficient to keep older subjects and borderline cases in a reasonably satisfactory state without exposure to the risks of operation. The amount injected should be from 500 to 700 c.cm. A pre-operative blood transfusion is always necessary.

OTHER METHODS OF TREATMENT

In addition to the methods of treatment described for the acute form there are others which have been used in the chronic. Calcium has been given in large doses, but its administration is valueless, for there is no shortage of calcium in the blood and no prolongation of the coagulation time.

Protein shock, either by injection of T.A.B. vaccine or of tuberculin, has yielded good results in children. I have had most unfortunate experiences of its use in adults, and would regard it as dangerous. There are well-authenticated cases in which haemorrhages have been prevented over many years by injections of adrenaline, 1 in 1,000 solution, 3 to 5 minims, and it is worthy of trial in cases beginning in childhood. It is only rarely effective, but in such cases its action is obvious in a few days. There is no evidence that ultra-violet light has any specific effect. Treatment with turpentine or with arsenic is also valueless.

(*To be continued.*)

ONE HUNDRED AND FOURTH ANNUAL MEETING
of the

British Medical Association

OXFORD, 1936

THE one hundred and fourth Annual Meeting of the British Medical Association will be held at Oxford next summer under the presidency of Sir E. Farquhar Buzzard, Bt., M.D., Regius Professor of Medicine in the University, Physician-in-Ordinary to H.M. the King, who will deliver his Address on the evening of Tuesday, July 21st. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 22nd, 23rd, and 24th, the morning sessions being given up to discussions and the reading of papers, and the afternoon to demonstrations. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 17th. The full list of presidents, vice-presidents, and honorary secretaries of the twenty Scientific Sections was published in the *Supplement* of April 11th ; also a list of hotels, etc., and the provisional programme. Other details of the arrangements for the Annual Meeting will appear in later issues. We publish below the third of a series of descriptive and historical articles on the City and University and the medical institutions of Oxford. The first appeared on February 8th (p. 265), and the second on March 7th (p. 479).

THE RISE OF THE COLLEGES

Before discussing the rise of the colleges one very common mistake must be dismissed. The colleges never were, except in two or three instances, monastic. To these two or three exceptions allusion will be made later on.

First of all, What is a college as we now know it? A college is a society consisting of a head, a body of fellows or tutors, and a certain number of scholars. The head, whose title varies with every college (warden, rector, master, provost), is elected by the fellows. The fellows are elected by the other fellows, either after examination or as a reward for some academic distinction. The scholars are elected after an examination held by the fellows of the college. This society is master of its own house. It holds property, first and foremost, of course, in its own buildings. Besides this local property it owns land in all parts of the country, and, further, draws its revenue from profitable investments of all kinds. It has acquired this property from its founder or founders, from pious benefactors, or from the foresight and thrift of its bursars. Another source of income is the commoners, who form the great mass of undergraduate members of the University ; they pay the college for their board, lodging, and tuition. The scholars, like the fellows, live more or less upon the college endowments.

Every college is equipped from among its fellows, or dons as they are popularly called, with a complete tutorial staff for all the various faculties. The teaching staff will of course vary in its size with that of the college. A large college will have two or more classical, theological, law, or history dons. A member of a college can in this way obtain all the tuition that he requires within the gates of his own college. He rarely so confines himself, as he is free to attend lectures in any part of the University, and if he is reading science he is bound to attend laboratories in the science department.

Inside the college each man has his tutor, to whom he reads essays once or twice a week, and who is always ready to give him assistance in his work. In the course of his career an undergraduate will probably come under several tutors. It is this individual tutorial system which constitutes the genius of Oxford education. No mass lectures can ever take its place. Once or twice a year the college sets examination papers to test its members' general progress. At the end of his third or fourth year the undergraduate is ready to present himself for his final examination before the University examiners for his degree. If successful he is entitled to supplicate, through his college authorities, for the status of B.A. He is then free to proceed to study in the special faculties, and to take a degree in theology, medicine, or science. Seven years after his entrance he may further supplicate for the degree of M.A.

Some colleges are rich, others comparatively poor. Their finances are absolutely independent of the University, to which, up to quite recent days, they contributed nothing. Since the middle of the last century they have been obliged to give a percentage of any surplus funds they may have. In addition, many of the richer colleges make free gifts to the University Chest.

This is the college system as it exists to-day. In a university which can claim to be at least 800 years of age it is certain that such a system did not spring up in a day, and must have seen many changes. How did it all begin? Think for a moment of the Oxford which the Danes burned down in 1010, a mass of wooden houses with straw roofs ; of the town which rose up in its place with a larger proportion of stone dwellings but still far too much of wood, and which was again almost totally destroyed by fire in 1199. Then an Oxford springs up of which we very soon begin to get maps. It is an Oxford of huddled courts and lanes. There are, of course, its main thoroughfares, but off these you are soon in a labyrinth of byways. In these streets dwelt the students and the townsfolk side by side. A party of students would club together and rent a house, and it became a custom, upon which the University authorities insisted, that after a certain number of years the house must always be let to students if required. These houses became known as halls. It was not absolutely necessary for a student to live in one of them ; he might live in a garret or a cellar. All that was required of him was that his status, as a member of the University, must be defined by his entering his name on some master's roll. The students in a hall elected their own head from among their own number. He then became responsible for the common purse and the general control of the house. The menial tasks in the house might be performed by a poor student, who received his board and lodging in return for his services.

The next stage was that someone who had been at a certain hall, in memory of the days he had spent there, gave money towards its upkeep and the common table. Then comes the most important stage of all. The hall is bought from its owners, and everyone who resides in it is given money for his support. Who did this first? Three foundations dispute this honour between them: University College, Balliol, and Merton. What is certain is that between the years 1240 and 1280 the great founders of these colleges acted in that way. They bought halls or

other tenements, and gave money or land towards their upkeep and drew up charters for the regulation of their inmates. These charters fixed the numbers of inmates and the amount of money which they were to receive. There was a head and a certain number of scholars or fellows. The rules for election were laid down, their studies, and the length of time they might occupy their position. Then as time went on further endowments from pious benefactors began to accumulate. More houses and halls were bought up, until at last there was money enough to pull the old houses and halls down and start building.

Very rarely is there a bit of these early colleges of which it can be said with any certainty that it was built in the founder's time. But a little later, in 1389, we not only have a bit, but a whole college planned out and finished, as it is to-day, by William of Wykeham: New College, of St. Mary of Winton, at Oxenford. Early in the same century Exeter and Oriel Colleges had been founded, but of their original buildings nothing remains. By the time of Queen Elizabeth almost all the colleges had been built. This must have occasioned a great destruction of the old halls and lodging-houses, and it was then that the great mass of commoners, or undergraduates, had to move into, and so became members of, a college.

The halls which survived had to be under the control of at least one master of arts. The few survivors grew in importance, possessing almost the status, and frequently the outward appearance, of a college. There is now only one left, St. Edmund Hall. There are, however, three modern halls: St. Benet's Hall for the Benedictine Order, Campion Hall for the Jesuits, and St. Peter's Hall for members of the Church of England.

Seventy years ago Oxford revived its mediaeval system by creating a new collegiate society. It is a growing society, which has recently put itself under the patronage of St. Catherine. Those who join it may lodge where they please, so long as the house has a licence to receive them. The head of the society must of course be a master of arts, and the whole educational system of the University is open to its members. This society was formed to enable men of small means once more to come up to Oxford.

HEALTH OF SCOTLAND

REPORT FOR 1935

The Department of Health for Scotland, in its report for the year 1935,[1] states that the general death rate was 13.2 per 1,000, which was slightly higher than the record low rate for the previous year. The principal causes of death were heart disease (12,523), malignant tumours (7,793), cerebral haemorrhage (6,480), pneumonia (4,600), and all forms of tuberculosis (3,647). Improved diagnosis has tended to increase the number of deaths attributed to malignant disease, while the slight increase in mortality from bronchitis and pneumonia was mainly associated with the prevalence of influenza and whooping-cough in the early months of the year. The tuberculosis death rate was lower than ever before. The improvement was least in females between 15 and 25; in the later age groups it was less marked among males than among females. It seems probable, the report continues, that an important part of the higher male mortality from this disease is occupational in origin. With the improvement in methods of diagnosis and the introduction of collapse therapy treatment of pulmonary tuberculosis is now more promising than it ever was. The infantile mortality rate for the year was 76.8 per 1,000 births—the lowest on record—but the Department considers that this rate is still too high.

Maternity and Child Health

The maternal mortality rate was 6.3 per 1,000 births, which, although 0.1 above the rate for the previous year, approximates to the average for the preceding five years. The Department emphasizes the need for improvement in the standard of midwifery, and states that recommendations were made in a recent report submitted to the Clinical Subcommittee of the Scientific Advisory Committee for a comprehensive scheme designed to cover the whole field of maternity service in Scotland. The report states that actual figures are not available of the number of expectant mothers who receive ante-natal supervision in any year, but on the basis of the total registered births the percentage attending ante-natal centres during 1934 was 35. Concerning the health of the school child, there is evidence of improvement in several directions, notably in the rising standards of physique as judged by the average height and weight, the decline in such affections as rickets and tuberculosis, and the greatly improved cleanliness and appearance of the children. The annual returns compiled from the records of school medical inspection of the selected age groups in all areas in Scotland showed that of a total of 236,923 children examined during the year the number whose state of nutrition was classified as "below average" was 12,598, or 5.35 per cent., while the number classified as "very bad" was 528, or 0.22 per cent. The corresponding percentages for the previous year were 5.34 and 0.19 respectively.

[1] Cmd. 5123. H.M. Stationery Office, 120, George Street, Edinburgh. (3s. 6d.)

Housing and Town Planning

Substantial housing progress was made during the year. The output of local authorities, 18,651, was the highest yet achieved, and the number of houses built with State aid since 1919 has now reached the total of 200,284. These accommodate probably a fifth of the total population of Scotland. Altogether over 235,000 working-class houses, with and without State aid, have been built in Scotland since 1919. Progress in slum clearance during 1935 was especially gratifying, over 15,000 of the total output of houses of local authorities being built under slum clearance schemes. An excellent start has been made also in bringing into action the programme of local authorities, under the Housing Act of 1935, for the relief of overcrowding.

Food Supply

A continued improvement in the health of children who are supplied with milk was evident, and it is hoped that as time goes on liquid milk will form a much greater part of the diet of the people than it does at present. Approved milk schemes for children stipulate that so far as possible the milk shall be from licensed tubercle-free herds, and the year 1935 has shown a large increase in the number of such herds.

Highlands and Islands Medical Service

The Highlands and Islands Medical Service continues to work well. The air ambulance service and the wireless and telephone services in the Highlands have been extended. Good reports are received of the work done by the surgeons who have been established in Zetland, Orkney, Lewis, Caithness, Sutherland, and Fort William.

National Health Insurance

A further increase in the contribution income for health and pensions insurance is regarded by the Department as reflecting a further general improvement in trade. Some £3,300,000 was paid in the way of sickness and other benefits under the National Health Insurance Act during the year. Over 395,000 insured persons were incapacitated, aggregating more than 18,500,000 days of incapacity; the corresponding figures for the previous year were 341,000 and 16,870,000 respectively. The increase is mainly attributed to an influenza epidemic in the spring of 1935.

FOTHERGILL TESTIMONIAL FUND

FIFTH LIST OF SUBSCRIBERS

It has been decided that this Fund shall be closed by the end of May, and it is hoped, therefore, that any intending subscribers will forward before that date their contribution to the Treasurer, Fothergill Testimonial Fund, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

The following is the fifth list of subscribers to the Fund:

	£	s.	d.
Amount previously acknowledged	1,361	12	0
R. L. Newell (Manchester)	2	2	0
Carnarvonshire Panel Committee	5	5	0
E. R. Sweeney (London)		10	6
J. P. Davie (Chesterfield)	1	1	0
H. Downer (Hove)	1	1	0
Bedfordshire Local Medical and Panel Committee ...	21	0	0
Carmarthenshire Panel Committee	5	5	0
Portsmouth Panel Committee...	13	8	0
Northampton Panel Committee	2	2	0
Glamorgan Panel Committee	10	10	0
C. J. Marsh (Yeovil)	1	1	0
A. T. Jones (Mountain Ash)	1	1	0
J. Macfadyen (Newcastle-on-Tyne)	1	0	0
F. A. L'E. Burges (Birmingham)	2	2	0
Sir Thomas Dunhill (London)...	3	3	0
F. H. Alexander (Littlehampton), H. Child (Brighton), — Marshall, F. Hinds (Worthing), N. E. Chadwick (Hove), D. D. Mackintosh (Worthing), W. N. Maple (Hove), Nora Crow (Brighton), A. Barnes, Sir Hubert Bond (Brighton), A. E. Cawston (Lewes), J. V. Banner (Brighton), W. A. Wood (Brighton), Roderick Clapham (Hove)	27	9	6
W. P. S. Branson, C.B.E. (Frimley Green)	2	2	0
B. R. Rygate (London)		10	0
C. F. T. Scott (Willesden)	1	1	0
W. Paterson (Willesden)	1	1	0
Adam Fulton (Harrogate)	2	10	0
	£1,466	17	0

PREVENTION OF BLINDNESS

THE ASSEMBLY IN PARIS

The general assembly of the International Association for Prevention of Blindness and of the International Organization of the Campaign against Trachoma will be held at 3 p.m. on Monday, May 11th, in the Grand Amphitheatre of the Centre Marcelin Berthelot, 28 bis, Rue St. Dominique, Paris. The chairman, Professor de Lapersonne, will report on the activities of the International Association during the past year, and reports on the question chosen at the meeting in London: "Infectious Conjunctivitis among Children under 10 Years of Age," will be presented and discussed. Professor F. Terrien will report on the classification of conjunctivitis, Mr. Rowland P. Wilson on the various forms of conjunctivitis in Egypt and the Near East; Dr. MacCallan, president of the International Organization of the Campaign against Trachoma, on the relationship between conjunctivitis and trachoma; and Mr. Bishop Harman, Member of Honour of the International Association for Prevention of Blindness, on the prevention of conjunctivitis in children and the social and administrative measures to be recommended.

Persons who wish to take part in the discussion of these subjects after the opening reports have been presented should send in their names to the Secretariat of the International Association for Prevention of Blindness, 66, Boulevard Saint Michel, Paris, together with the title and a brief summary of their communication. Oral communications must not exceed ten minutes. The printed reports will be distributed to members of the Association and forwarded on request.

England and Wales

The Municipal Hospital Service of London

In putting forward the estimates of expenditure on hospitals and medical services by the London County Council the committee concerned states that it has numerous schemes in mind as being of first importance in making the municipal hospital service of London what it should be. These comprise, at a number of general hospitals, new receiving wards and out-patient departments, new ward blocks, including more and better maternity accommodation, operating theatres, sanitary annexes, also the adaptation of institution accommodation to make it suitable for the reception of sick persons, and the provision and extension of nurses' homes and central kitchens; and at special hospitals, isolation blocks, additional accommodation for patients and nursing staff, and various reconstruction and improvement schemes. The capital expenditure will be considerable, but as time will be taken in the provision of plans and in the issue and acceptance of tenders only a small proportion of it will fall in the financial year 1936–7. A sum of £150,000 has been budgeted for this purpose. The important schemes of extension and development undertaken during the last two years include a new ward block and nurses' home and the adaptation of institution blocks at Hammersmith Hospital, a new ward block and extension of nurses' home at Paddington Hospital, an extensive reconstruction scheme at North-Eastern Hospital, the enlargement of Heatherwood Hospital, and the conversion of Princess Mary's Hospital, Margate, into a convalescent home for women, as well as various other schemes for increasing and improving accommodation, providing additional facilities for treatment, reconditioning ward blocks in institutions, and providing new nurses' homes and extensions.

Dr. Adler's Lectures on Individual Psychology

Under the auspices of the Medical Society of Individual Psychology Dr. Alfred Adler, the founder of the School of Individual Psychology, will give an address on Thursday, May 7th, in the Great Hall, B.M.A. House, Tavistock Square, W.C.1, at 8 p.m. Doors open at 7.30 p.m. The subject of the address will be "The Psychological Approach"; it is expected that the subject-matter of the lecture will prove of special interest to doctors in general practice. The meeting will be open to all members of the profession and their friends. Tickets can be obtained free of charge on application to Margaret Watson, Ltd., 15, Palace Chambers, Bridge Street, S.W.1. Dr. Adler will also deliver three public lectures in the Conway Hall, Red Lion Square, on May 11th, 12th, and 13th at 8 p.m. The subjects of these lectures will be: "The Science of the Individual Personality"; "The Science of Social Psychology"; and "The Science of the Prevention of Neurosis and Crime." The chairman on these occasions will be Sir Walter Langdon-Brown, Dr. H. C. Squires, and Dr. W. Norwood East. The price of tickets for these public lectures is 2s. 6d., obtainable from Alfred Hays Ltd., 62, Strand, W.C.2.

Memorial to Dr. Griffith Evans

Steps are being taken by the authorities of the University College of North Wales, Bangor, to raise a worthy memorial to the late Dr. Griffith Evans, who was the first lecturer in veterinary hygiene in that institution. Dr. Griffith Evans died last December, four months after reaching his hundredth year. He was regarded as the father of the veterinary profession, and his pioneer work, the value of which was not fully recognized until long after his discoveries had been made, is now well known to members of both the veterinary and the medical professions. Some years ago the value of the work of Dr. Evans to human medicine was recognized by the grant of the Mary Kingsley medal, and on the occasion of his centenary last August congratulatory messages were received from medical institutions and medical men all over the world. The form which the memorial is to take is that of a new wing to the veterinary department of the

School of Agriculture in the College, which will be named the Dr. Griffith Evans Memorial Wing. Medical men in North Wales to whom the project has become known are already responding generously, and the Fellows and Members of the Royal College of Veterinary Surgeons are showing themselves warm supporters of the memorial. Over £1,000 has already been received, and the Government has promised a £ for £ grant for the first £2,000 collected.

Scotland

Changes in Glasgow Professoriate

At a meeting of the Court of the University of Glasgow on April 16th the resignations were intimated of Professor T. K. Monro from June 20th next, and of Sir Robert Muir from September 30th next. Professor Thomas Kirkpatrick Monro, who holds the regius chair of the practice of medicine, was for a time physician and clinical lecturer at the Royal Infirmary, as well as professor of medicine and dean of the Medical Faculty at St. Mungo's College, which is connected with the Royal Infirmary. In 1913 he was appointed professor of the practice of medicine in the University of Glasgow, and transferred to physician in charge of wards in the Western Infirmary. He has made numerous contributions to medical literature, of which his *Manual of Medicine* attained a fifth edition in 1925. His book *The Physician as Man of Letters, Science, and Action*, published in 1933, was a scholarly exposition of various fields outside medicine in which members of the medical profession have been active.

Sir Robert Muir, F.R.S., who holds the chair of pathology, became a Fellow of the Royal College of Physicians of Edinburgh in 1895, and of the Royal Faculty of Physicians and Surgeons, Glasgow, in 1901. He has also received the honorary degrees of Sc.D., LL.D., and D.C.L. from various universities. He was the first person to be appointed lecturer on pathological bacteriology—an appointment which was made in 1894. Four years later he accepted the chair of pathology in the University of St. Andrews, being again the first to hold this newly instituted appointment, and for a year he conducted classes in Dundee. In 1899 he was chosen professor of pathology in Glasgow University, where he has since remained. He has attained a great reputation as a teacher and as an investigator of problems in pathology, bacteriology, and immunology. He has contributed the results of many researches to current medical literature, and his *Manual of Bacteriology*, prepared in collaboration with the late Professor James Ritchie, reached its ninth edition in 1932. His *Studies on Immunity* was published in 1909, and his *Textbook of Pathology* reached its third edition in 1933. He was awarded a Royal Society medal in 1929, and in 1935 the Royal College of Physicians of London elected him a Fellow under By-law XXXVIII. On April 7th last he received the triennial Lister medal and gave the Lister Memorial Lecture before the Royal College of Surgeons of England.

Edinburgh Orthopaedic Clinic

At the annual meeting of the Edinburgh Orthopaedic Clinic, held recently in the Scottish House of the British Medical Association, Miss Gertrude Herzfeld, F.R.C.S., said that this clinic had started in a small way ten years ago under a group of enthusiastic masseuses. Year by year the work had increased, and in 1931 the clinic had been formally set up as an independent body. Last year 502 patients had been treated and 9,442 treatments given. Treatment could now be obtained on five days a week, and as more apparatus was needed an appeal was being made for subscribers. The clinic was utilized by the Princess Margaret Rose Hospital for Crippled Children, partly for after-care and partly as a city location for seeing new patients. The object of the clinic was to provide massage, medical gymnastics, medical electricity, and ultra-violet ray treatment for people of limited means at moderate fees.

Reports of Societies

SPONTANEOUS PNEUMOTHORAX

At the March meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, with the president, Dr. V. M. SYNGE, in the chair, Dr. GEOFFREY BEWLEY read a paper on spontaneous pneumothorax.

He considered that active or healed tuberculous lesions in the lung sometimes caused this condition, but that the figure of 90 per cent., given in most textbooks, was a gross exaggeration. In young persons, where the course of the condition was afebrile and no effusion occurred, the causation was certainly not tuberculous ; it was probably due to rupture of a bulla on the surface of the lung. When the lung collapsed the edges of the tear fell together and united rapidly, thus allowing the lung to expand fully as the air was absorbed. In some cases, where the pneumothorax persisted, the tear was probably close to the base of an adhesion, and this prevented the edges falling together and uniting. The speaker illustrated his remarks with notes of ten cases, which showed the difficulties which were experienced in diagnosis. The only constant sign was diminution of the breath sounds over an area which was resonant, and the only proof was exploration of this area with a needle attached to a manometer. In two cases proved by manometry radiology failed to show any abnormality.

The PRESIDENT mentioned a case he had seen two years ago, that of a woman aged 35, who had had a large spontaneous pneumothorax and had become extremely dyspnoeic. The lung was completely collapsed, and remained so for many months. She went to London for treatment and while there, a year after the pneumothorax had occurred, the lung commenced to expand, and from then on she had done very well. Dr. E. T. FREEMAN said that he had seen a large number of cases of spontaneous pneumothorax, and the majority of them were not tuberculous. He had followed some of his cases for a long time, and there had not been any evidence of tuberculosis supervening. In some cases which were definitely tuberculous hydropneumothorax had supervened. The possibility of the occurrence of an effusion in these cases was helpful. He had seen a very dramatic case in which spontaneous pneumothorax had developed in a child as the result of coughing during a spasm of whooping-cough. The child ultimately made a good recovery, but she had required a needle to be kept in her chest for a week. He had also seen a case which on admission to hospital was at first thought to be one of coronary thrombosis. The man had fallen off his bicycle, and when admitted had complained of terrible pain in the left side of his chest. A needle was put into the chest, which was found to be full of air. This patient also recovered after a time.

Professor L. ABRAHAMSON agreed that spontaneous pneumothorax was relatively common and often unassociated with tuberculosis. He saw no point in intervention unless urgent symptoms were present ; where air persisted for a long time he thought that the patient could be safely left alone. In a case of bilateral spontaneous pneumothorax described by him air had persisted in one side for nine months without interfering with the patient's activities ; it had then cleared.

Dr. B. PRINGLE referred to the question of the frequency of recurrence of pneumothorax and the possibility that the removal of fluid might have some effect on the rapidity of expansion in these cases. In a case which he had seen about six months before, a man aged 54 complained of gradually increasing dyspnoea. He had been suffering from dyspnoea for six months, but it was getting more severe. The only physical sign in this case was diminished breath sounds on one side, which Dr. Pringle thought was often the only sign present in these cases. The man was in hospital for two and a half months. An *x*-ray film showed very considerable collapse of the left lung, and 500 c.cm. of air were taken away. A later *x*-ray examination revealed that the lung was beginning to expand, and at the end of two and a half months expansion was complete. Three months later, however, he sustained an

acute recurrence of the pneumothorax and considerable cardiac displacement.

Dr. G. DOCKERAY said that he had seen this patient late one evening in hospital, when he was in a moribund state, air coming out at a very great pace. After a fairly quiet night he was greatly troubled with dyspnoea and there was some surgical emphysema. An attempt was made to take out more air, but the dyspnoea became rapidly worse, and the man died forty-eight hours after admission. The subcutaneous emphysema was so great that the patient could not open his eyes. At the post-mortem examination there was no evidence of tuberculosis in the lungs, but in the upper lobe of the left lung there was a very small area with a little fresh fibrin, indicating the point of rupture. Dr. J. LEWIS said that the occurrence of spontaneous pneumothorax in patients who were apparently healthy was not very rare. He had recently had under his care a young and keen football player, in whom there did not seem to be anything physically wrong, but an *x*-ray examination revealed spontaneous pneumothorax. He had also had a patient under his care who had never had dyspnoea or pain, and yet the pneumothorax was complete. The question of treatment of cases of acute or subacute pneumothorax was very difficult. He had seen a patient with chronic bilateral spontaneous pneumothorax who had died very soon after the diagnosis had been made. This patient had suffered from what were supposed to be repeated attacks of chronic asthma. He referred to the injection into the pleural cavity of silver nitrate in the hope that it would, by closing the lung, bring about absorption of air in the closed cavity. Dr. R. H. MICKS objected to the methods of treatment which aimed at rapid re-expansion. The majority of cases were not tuberculous, but it was possibly the best thing for the patient that the lung should remain collapsed for a time. He would not attempt re-expansion of the collapsed lung, but would watch the patient while the lung was expanding.

Dr. H. T. BEWLEY said that this condition was very much more common than it used to be: forty years ago it was looked upon as extremely rare. He mentioned a case of recurrence of pneumothorax in a young man who had been gassed with chlorine in France; he had had spontaneous pneumothorax on eight occasions, the last being just a month previously. He recovered from each of the attacks, and remained quite well until the next one. He had been free since 1923 until the recent attack. The air on each occasion was sterile and the pneumothorax never became infected. Dr. ALAN THOMPSON remarked that the number of these patients who showed urgent symptoms was comparatively small compared with those in whom the course was quiet. He had recently treated a patient who had come into hospital as a case of lobar pneumonia. There was no doubt about the lobar pneumonia, but a pneumothorax was also present. He had thought that the case was probably one of tuberculous consolidation of the lung with coincident pneumothorax. The left lung was normal. No tubercle bacilli were found in the sputum. The case ran a typical pneumonic course, and the pneumothorax gradually disappeared. The condition cleared up completely, and the patient had not had any trouble since. The speaker thought that lobar pneumonia with spontaneous pneumothorax at the same time must be rather a curiosity. The pneumonia had been ushered in with typical pleural pain, which suggested that the pneumothorax had developed after the initial pneumonic pleurisy.

Dr. A. R. PARSONS protested against putting a needle into the pleural cavity. Nearly all these patients would probably get well if they were left alone, and he could not see what was gained by the procedure, which distressed the patient and upset his respiratory mechanism to no purpose. Dr. D. M. MITCHELL agreed that removing air from a pneumothorax, even in urgent cases, was not very helpful; decreasing the pressure in the cavity did not seem to do any good. There were a large number of cases in perfectly healthy young people, who showed no evidence of tuberculosis and ultimately got quite well. Non-tuberculous cases hardly ever developed an effusion, whereas tuberculous cases almost always did so. He did not regard emphysematous bullae as the cause of spontaneous pneumothorax. Young adults did not have emphysema. Dr. G. T. O'BRIEN had seen a case of spontaneous pneumothorax in an infant aged 3 months, who died very rapidly, tuberculous disease being found in the lungs.

Dr. BEWLEY replied that the prognosis in tuberculous cases was usually grave, but it was very good in the simple cases. No treatment was necessary or advisable, except in those cases with urgent dyspnoea, where air was entering the pleural space with every respiration. In these cases the intrapleural pressure was very high, and must be relieved by withdrawing air.

TREATMENT OF NEPHRITIS

A meeting of the Devon and Exeter Medico-Chirurgical Society was held on March 26th, the president, Dr. A. HIPWELL, being in the chair. Dr. F. A. ROPER read a paper on "Some Problems of Nephritis in Relation to Treatment."

Dr. Roper first referred to the brilliant discoveries announced by Bright exactly a hundred years previously, and the remarkable manner in which the principles he then enunciated as to the unity of all the forms of Bright's disease had stood the test of time. But he claimed that a share of the credit was due, doubtless with others, to Dr. Blackall of Exeter, whose book on dropsies, which had been published twenty-three years earlier, contained the first observations in medical literature showing a relationship between albuminuria and dropsy, and clearly expressed the suspicion that kidney disease was the cause. Dr. Roper then outlined the basic physiological and histological conceptions on which were founded the modern theories of the phenomena of renal disease. The essential structure was the nephron, consisting of a glomerulus and its tubule. Its blood supply was peculiar inasmuch as the afferent arteriole exclusively supplied the glomerular capillaries; these then reunited into an efferent vessel, which broke up into a second capillary system for the secretory part of the corresponding tubule. The glomerular secretion was a thin, watery filtrate containing the blood crystalloids; larger molecules, such as protein, were normally held back. In the tubule the crystalloids of use to the body, such as sugar and chlorides, were reabsorbed, together with water, by the secretory cells of the tubule, other substances such as urea being selectively allowed to pass out of the body. Furthermore, it had been conclusively demonstrated that normally only about one in four of the ten million or so nephrons in each person was at any one moment active, the remainder being in a state of temporary rest and closure, with no visible circulation through the glomerulus. Thus the kidneys possessed a very large functional reserve for any extra demands. From all this it would be naturally expected that any damage to this histological structure would result in an approximation of the composition of the final excretion to that of the blood; for example, failure of the tubule to concentrate, as well as the letting through of larger molecules, such as protein, in the glomerular process of filtration. Albuminuria was undoubtedly of glomerular origin, the reason why albumins so heavily predominated over globulins in the urine being the relative smallness of the albumin molecules as compared with those of the globulins. The absence of inflammation in nephrosis, the heavy albuminuria in cases of that type, and the predominance of albumin in all types seemed to indicate conclusively that albuminuria could not be accounted for as an inflammatory exudate.

LESIONS AND FUNCTIONAL DISTURBANCES

Dr. Roper then discussed briefly the essential lesions and resulting disturbances of function underlying the degenerative or toxaemic, the inflammatory, and the arteriosclerotic main groups of Bright's disease respectively. In the arteriosclerotic group the disturbances were due to interference with blood supply, whether resulting from narrowed arteries or cardiac failure. In

the acute inflammatory cases the disturbances were largely consequent upon vascular blockage of all the nephrons, the brunt falling first on the glomeruli. In the focal forms, commonly seen in association with tonsillitis, the functional disturbance was usually minimal or absent, since for some reason only a fraction of the nephrons were attacked. After the acute stage, in the generalized cases, the pictures diverged into a very large variety of different types depending on the severity of the attack and the extent to which the glomerular and tubular parts of the mechanism had suffered respectively. At one extreme were those cases where the glomeruli had sustained the major injury. After the acute stage had passed there might be an intervening "silent period" for some years, with freedom from symptoms; but eventually many of them merged into a clinical state closely simulating the picture presented by the essential hypertensive or arteriosclerotic group. At the other extreme were those cases showing predominating features recognized as those of tubular nephritis; in other words approximating to the condition labelled nephrosis. The word nephrosis was first coined by Müller to cover those cases where the morbid process appeared to be degenerative, or in which the inflammatory nature was not free from doubt. The characteristic features were heavy albuminuria and gross oedema, but without the accompaniments of hypertension, retinal changes, history of haematuria, nitrogen retention, or indeed of any objective sign of renal disease during life except the gross proteinuria and consequences directly arising therefrom. Nephrosis in pure form, if it occurred at all, must be an extreme rarity, but its study had led to important increases in knowledge, and to new conceptions having marked practical repercussions on treatment. These advances mainly centred round the problems of oedema, of disturbances in chloride distribution and excretion, and of oliguria. The modern conception of chronic oedema was mainly attributable to Epstein; it was based on Starling's researches into the osmotic power exerted by the blood plasma proteins, and was so simple and so well founded on established principles and ascertained fact that it appeared quite final. According to this theory such oedema was the direct physical consequence of the depletion from the blood of much of its plasma protein, which escaped into the urine owing to glomerular hyperpermeability. This depletion was said to amount in some instances to as much as 10 per cent. or more each day of the total blood plasma protein. The osmotic power of the plasma of the circulating blood was therefore so reduced that the tissues attracted from the capillaries, and on balance retained an undue amount of water, causing oedema.

TREATMENT

It appeared rational, therefore, to give the fullest protein diet in such cases in order to endeavour to provide material for making up this wastage. Epstein had advocated the administration in the diet of gross amounts of protein. Such procedure was the more legitimate because in these cases there was no nitrogen retention; in fact, a urea diuretic effect might also be aimed at, and urea itself be administered additionally. The results were sometimes most encouraging, occasionally even dramatic. It was in this type of case also, *par excellence* among renal cases, that the new mercurial diuretics such as salyrgan gave such powerful aid. In other types of chronic renal disease where there was oedema any possible cardiac factor must also receive the fullest consideration and be treated if necessary; there was a large class of cases in which the oedema was of mixed cardiac and renal origin. As regards the vexed question of chloride excretion there were large gaps in our knowledge of the mechanism at work both in health and in disease. In the nephrotic types retention of salt in the body occurred beyond doubt, but it seemed equally certain that renal defect was not the cause. Since also there was no constant rise of blood chloride in these cases the hypothesis of a general retention of chloride in the tissues had lately gained ground; indeed, this was somewhat naturally held to be a factor in oedema. A great objection to this latter idea was the fact that in complete anuria, such as from bilateral calculous obstruction of the ureters or from removal of a single kidney, oedema was a most unusual consequence, even though food was taken. Nevertheless, whatever the mechanism, it was certain that total removal of salt from the diet, though difficult to ensure, resulted in improved diuresis and diminished oedema. Oliguria appeared to be brought about in a variety of different ways, but all the causes had it in common that, from the practical standpoint of treatment, to attempt to remedy it by giving increased water was futile, indeed almost always harmful. In acute nephritis oliguria was due to blockage of the tuft-tubular systems. In chronic nephritis of glomerular inflammatory or of arteriosclerotic type it was circulatory in origin from atrophy of the glomeruli; in other words, there was failure to excrete water as well as all the other normal renal excreta, such as nitrogenous and other crystalloids. The oliguria of the nephrotic types was more difficult to explain, but the explanation recently advanced by Shaw Dunn appeared plausible and attractive, and to fit the facts to a remarkable degree. Shaw Dunn stated that it was now becoming a well-established observation that even in nephrosis glomerular changes occurred, inasmuch as in this condition permanent patency of all the glomeruli was found histologically. It appeared that a characteristic result of minimal damage to a glomerulus was the production of permanent vascular patency, even where no other lesion could be detected histologically. Hyperpermeability, allowing albuminuria, was one result of this, but another result was that the blood supply to the glomerular field was distributed to the total existing glomeruli instead of the one in four or so normally functioning at one time. The inevitable consequence of this must be a slower perfusion of each individual glomerulus, resulting in a smaller, slower trickle of glomerular filtrate, and thus a pathologically extended opportunity for an abnormal degree of reabsorption in the tubule. Though in these circumstances every nephron made its contribution to the total urine instead of only a fraction, as in the normal organ, it seemed eminently probable that such over-reabsorption would result, on balance, in oliguria, and nitrogen excretion would of course remain unimpaired, as was in fact clinically observed. Dr. Roper reviewed further principles of treatment of acute and chronic inflammatory nephritis which accrued from the physiological and pathological considerations which he had discussed, mentioning also that there was evidence that in acute nephritis the very early oedema often observed had a unique causation, possibly of the nature of a generalized capillaritis due to the bacterial toxins in the circulation in the first day or two of the attack.

Dr. W. A. ROBB said that there was no repair in nephritis, and it was harder to cure than cancer. In nephritis the only objective could be removal of the load. As regards infective causes, in many cases no particular organism could be designated, but Professor Aschoff strongly suspected the pneumococcus. Although that organism had a selective affinity for certain organs, it had to be remembered that nephritis was not a disease of the kidney, but rather part of a generalized infection. Dr. T. A. MICKLEM alluded to the great preference for treatment with alkalis many years ago, and asked how far they could be proved useful in renal disease.

Mr. NORMAN CAPENER mentioned the comparative present-day infrequency of amyloid disease of the kidney in association with suppurative affections of the bones and joints—a point which had been raised previously during the discussion—in relation to prolonged smouldering infections in bone resulting from injuries in the war. He considered that modern treatment which aimed at the wide exposure of diseased cavities in bone, fixation of tuberculous joints, all in association with modern open-air methods of treatment, could claim a share in this reduction of amyloid disease. The PRESIDENT had seen it stated that the kidneys never escaped entirely in scarlet fever, and asked if this was generally held. Dr. G. L. THORNTON mentioned the treatment of earlier days, when vapour baths were given with a view to inducing profuse sweating. He asked Dr. Roper if he attached any value to this procedure.

In his reply Dr. ROPER said that as regards alkaline treatment potassium citrate had been advocated by an authority in cases of scarlet fever, but it had been prescribed as a protection from, rather than as a form of treatment in, nephritis. An extensive experience of cases of acute nephritis over-seas in the war had revealed the vapour bath in popular usage. He himself had since abandoned this line of treatment, having come to the conclusion that the over-heating reduced the vitality, while it could not be proved physiologically that the restoration of kidney function was assisted by enforced excretion through the skin. It was impossible to prove the statement he had quoted when so many cases of scarlet fever gave no indication of an associated acute nephritis.

CORRESPONDENCE

A Crusade Against Acute Rheumatism

SIR,—Dr. T. Drummond Shiels, in your issue of April 18th (p. 817), supports Professor W. T. Ritchie's plea for a "crusade" against rheumatism. He says that medical officers of health would welcome more specific recommendations from the central Government medical departments in regard to the establishment of special rheumatism centres, and the appointment of "rheumatism medical officers," comparable in function and status to venereal diseases and tuberculosis medical officers. Dr. Shiels believes that these specific recommendations would greatly impress the members of public health and education committees.

I doubt whether Dr. Shiels has accurately interpreted the views of the majority of medical officers of health on this question. It appears to me that the time has arrived when it is desirable to distinguish between "rheumatism supervisory schemes" and measures for the prevention of acute rheumatism. Rheumatism supervisory schemes are the concern of the juvenile "rheumatologists" and the cardiologists. Whether the rheumatic child is any better cared for under a "scheme" than it is under the ordinary private and voluntary and public medical services for children is a matter for doubt. It is certain that the propaganda which is so often a feature of these schemes has bad psychological effects in many cases.

Measures for the prevention of juvenile rheumatism are, or ought to be, a primary concern of practitioners of preventive medicine—that is to say, doctors in private and public practice whose work brings them into daily contact with large numbers of children of all ages who are not presumed to be the subjects of rheumatic infection, or, indeed, of any other infection or disease. Among the most important measures for the prevention of acute juvenile rheumatism may be mentioned:

1. An active nutrition campaign in which doctors, school nurses, health visitors, and teachers are constantly preaching the gospel of good food as the foundation of health at all ages.
2. Adequate rest in comfortable beds in well-lit, well-ventilated houses free from dampness or overcrowding or other sanitary defects.
3. Personal skin cleanliness—an important factor which is greatly aided by the provision of soap and hot water bathing facilities in public elementary schools.
4. Adequate clothing, especially in regard to footgear—a matter which should receive the closest attention of school care committees.
5. Well-organized physical training and games in the open air, due and proper attention being paid to deep breathing and posture.
6. The prevention and treatment of dental decay.

These and all the other measures which are taken in enlightened districts to promote the health and growth and general physical and mental well-being of the child population are the measures by which acute rheumatism in childhood may be prevented. They are not exhaustive—for example, the private doctor who constantly keeps in mind the preventive aspect of his calling may prescribe salicylates or aspirin to be taken for a few weeks after every attack of sore throat in children and adolescents as a precaution against subsequent rheumatism. But none of these measures calls for the establishment of "rheumatism supervisory centres" or "rheumatism medical officers": on the contrary, it can be claimed that in a district in which these measures of prevention are applied with vigour and enthusiasm there is very little juvenile rheumatism to supervise.

This distinction between the supervision and prevention of acute rheumatism in childhood is, I submit, of fundamental importance to public health and education authorities. Where the distinction is clearly understood and the measures of prevention are adequately pursued juvenile rheumatism is a disappearing disease. The dreaded disease is likely to attain its highest incidence, and to linger longest, in those areas which make the most complete provision for its "supervision."—I am, etc.,

R. P. GARROW,
Medical Officer of Health.

Hornsey, April 18th.

Latent Tuberculosis

SIR,—The paper by Drs. Wingfield and Macpherson appearing in your issue of April 11th (p. 741) is a valuable contribution to the solution of tuberculosis problems. The number of healthy young adults discovered to have definite radiographic evidence of tuberculosis is much the same as that of similar series published elsewhere, but Drs. Wingfield and Macpherson rightly emphasize a feature which, though known to those engaged in tuberculosis work, is not yet found in books: that pulmonary tuberculosis frequently progresses extensively before causing any symptoms whatever. The subject, however, is not so simple as some readers might infer, for a second *x*-ray examination of a chest perfectly clear six months previously may reveal considerable disease, and cases found to be affected may, in the course of years, show complete clearing of the lung fields, although the patient has undergone no treatment whatever.

My impression from radiography of young adults in tuberculous households is that the radiographic incidence among these is very much higher than that found by the authors of this paper. It is certainly right to advocate an overhauling of our tuberculosis campaign, but I do not believe that the question of infection can be ignored. We should devote more energy to radiography of adults and young adults in tuberculous households, and this would lead to the discovery not only of cases of unsuspected young adult tuberculosis, but also of unsuspected adult carriers.—I am, etc.,

ERNEST WARD.

Paignton, April 18th.

Tuberculin

SIR,—I am grateful for your very generous and discriminatory review of my *Tuberculin Handbook* (*Journal*, April 18th, p. 797), and would like to be the first to agree with your reviewer that Koch's erroneous deduction about the relative immunity of an allergic man and a non-infected guinea-pig should have been omitted. In all probability tuberculin cannot confer lasting immunity unless some degree of infection, latent though it be, is present. This would explain why, with tuberculin, Koch only obtained a transient immunity in healthy guinea-pigs and von Behring in healthy cattle. If I remember

aright the immunity obtained by von Behring in cattle did not last longer than nine months. His work was interrupted by a tragic illness, and results of Dr. Stanley Griffith's present experiments at Cambridge are eagerly awaited.

In tuberculous patients the immunity conferred by tuberculin is more lasting. At the end of a course of treatment I advise patients to return in a year for a retest to determine the degree of immunity. In one case of tuberculous glands in the neck ("a two-hours dissection," said the surgeon who did not operate) successfully treated with tuberculin up to 0.2 c.cm. of pure bacillary emulsion, three years elapsed before the patient was retested, and then there was no reaction to a subcutaneous test of 0.01 c.cm. T.A.F., although four years previously she had given a temperature reaction of 101.6° F. to a dose of 0.001 c.cm. of bacillary emulsion. —I am, etc.,

London, W.8, April 20th. HALLIDAY SUTHERLAND.

A Vacant Coronership

SIR,—Some weeks ago a letter was published in the *Journal* (March 28th, p. 667) setting forth the conditions of appointment to the coronership for the Southern and Western Districts of the County of Essex, and showing that the net annual salary for the whole-time coroner would be about £600 a year.

Four candidates, all of whom had held inquests as coroner, deputy, or assistant coroner, were interviewed by members of the General Purposes Committee, and two, qualified legally and medically, were selected for final vote by the whole council. Both withdrew their names, and in the *Times* of April 20th there appears another advertisement of this appointment, but the salary is now £1,000 a year and £100 is allowed for expenses. This would give the successful applicant about £800 a year net instead of £600.

Your publication of the first letter has to that extent fulfilled its object.—I am, etc.,

Coroner's Office, City, E.C., April 20th. F. DANFORD THOMAS.

Medical Coroners

SIR,—The letter from Dr. Timothy Leary, in your issue of April 18th (p. 820), setting out the system adopted in Massachusetts, is particularly interesting at the present time. It may be noted that the separation of the two questions as to what caused the death and who caused the death corresponds closely with one of the most prominent recommendations of the Departmental Committee in this country, which is that:

> The office of coroner should be retained, the coroner's jurisdiction being limited to the investigation of the facts how, when, and where the death occurred and this investigation of facts being clearly distinguished from any trial of liability whether civil or criminal. (The latter matters are for the police or criminal or civil courts.)

The question to be investigated is purely a medical one—the cause of death. It is somewhat surprising, therefore, to find the Departmental Committee recommending that the investigator should be a lawyer. It is only since the Coroners (Amendment) Act, 1926, that any professional qualification has been required for coroners. That Act made it compulsory for all future coroners to be either lawyers or medical men. If all the recommendations of the Committee are adopted the proceedings of future inquests will be very much simplified: the cause of death will be the only subject of inquiry, and rules (hitherto non-existent) for the conduct of the inquiry will be laid down.

As the evidence submitted to the Committee is not available it is difficult to understand how it could have recommended that the coroner should be any other than one who had had a medical training. It is true that the Committee expressed a pious hope that if a medico-legal institute were established it might well be authorized to give a course in forensic medicine for persons who desired to be coroners. How little that would fill the hiatus of a medical training can only be appreciated by the medically trained. Far easier, and probably more effective, would it be for a medical man to study a law book on evidence if that were necessary to qualify him for a coronership.—I am, etc.,

Coventry, April 20th. E. H. SNELL, M.D., Barrister-at-law, Middle Temple.

Allergy and Vasomotor Instability

SIR,—It is almost amusing to note how the blessed word allergy is twisted about to be made responsible for almost all the ills of the flesh. Originally the word was coined to denote a condition of hypersensitiveness to proteins, but now it is made to cover any deviation from the condition of health. Dr. Crawford's paper on "Allergy in Five Generations" in the *Journal* of April 11th (p. 751) is very interesting, but how much more instructive and interesting it would be if, throughout the paper, the words "vasomotor disturbance" were substituted for "allergy." In this paper, which shows that various vasomotor neuroses, of which asthma is the most prominent, have been found in five successive generations, Dr. Crawford refers to "lesions which are essentially similar in the different organs attacked—that is, a vasomotor disturbance. . . . Thus in asthma the bronchioles are affected, in hay fever the nasal mucosa, in migraine the meninges or ependyma, in urticaria the skin, and in rheumatoid arthritis the muscles, bones, and joints." This must be rather a shock to most allergists, who are at much pains to prove that asthma is the result of bronchial spasm, produced reflexly by allergic poisons.

Circulatory instability is an inheritable condition, and various things besides hypersensitiveness to proteins are capable of disturbing the vasomotor balance. Further, when the vasomotor system has been made stable, without adopting any special anti-allergic immunization, the so-called allergic irritants no longer have any effect, which tends to show that allergy has only a secondary exciting influence upon an unstable vasomotor system and is not a fundamental cause of trouble. The more we investigate the cause of ill-health the more we shall find that a faulty circulation is the *fons et origo mali*.—I am, etc.,

London, W.1, April 12th. ALEXANDER FRANCIS, M.B.

Resuscitation by Cardiac Massage

SIR,—Numerous cases of resuscitation by cardiac massage have been reported in your columns, but (unless I have missed the report) I think there is no mention of any case in which the patient's condition has been so satisfactory after resuscitation as to warrant the commencement and completion of an operation.

In December, 1932, at a local mental hospital, I was asked to see a rather frail woman, 50 years of age, who was suffering from melancholia and had a large simple cyst of the right breast which was threatening to burst through the skin. I advised removal of the breast, and the patient was in due course anaesthetized with open ether, there having been a pre-anaesthetic injection of morphine, 1/4 grain, and atropine sulphate, 1/50 grain. Whilst waiting to make an incision both pulse and respiration failed, and the patient's face took on that colour which is only too well known to surgeons as indicating impending death. No time was wasted on artificial

respiration, but an abdominal incision was made and cardiac massage commenced. After what seemed an eternity, but was, I suppose, only a matter of less than a minute, the heart, which at first had been almost impalpable through the diaphragm, gave a feeble kick and after a minute or two had regained a regular, though rapid, rhythm.

While the abdominal wound was being sewn up her pulse and general condition became so satisfactory that the operation originally proposed—local excision of the small breast and contained cyst—was carried out without any further anxiety. The patient's recovery was uneventful, and she is still alive and well.

It is possible, or even probable, that in this case injection of adrenaline or coramine into the heart muscle would have had an equally satisfactory result, but materials for such an injection were not immediately available. The happy ending to this case suggests that the important factor was avoidance of delay.—I am, etc.,

Hove, April 20th. GEOFFREY BATE.

Retirement of Irish Free State Doctors

SIR,—Many of our members of 65 years of age or more who are in the service of local authorities in the Irish Free State have written to ask advice as to what action they should take in regard to demands that have been or may be made to them to resign their posts in pursuance of a circular recently issued by the Minister for Local Government and Public Health. The Council of this Union directs me to advise all such officers who have no wish to retire to take no steps in the matter until they receive further advice from the Union.—I am, etc.,

JOHN P. SHANLEY,
Hon. Secretary, Irish Free State Medical Union (I.M.A. and B.M.A.).

18, Kildare Street, Dublin,
April 20th.

Medicines and Appliances Bill

SIR,—In your issue of April 11th (p. 773) there is a letter from Dr. Alfred Cox on the treatment of the Medicines and Surgical Appliances (Advertisement) Bill in the House of Commons. One hesitates to cross swords with such an experienced medical dialectitian, but I hope you will allow me to make some general remarks on the letters which have appeared on this Bill in your *Journal*.

Contempt for Parliamentary institutions has been hinted at because a Bill fathered by the B.M.A. has been lost by recognized Parliamentary procedure. If the trade union and the democratic movement adopted a similar attitude of umbrage on each occasion that proposed trade union legislation was rejected by such a representative institution as the House of Commons, members of the profession would be the first to object to this attack on democracy as favouring the alternative of dictatorship. A Bill may be killed in Parliament either by a direct adverse vote or by obstructionist tactics, or, as in the case of the Medicines and Surgical Appliances Bill, by abstention. There is no reason in the world why opponents of the measure should not choose one or other of the methods which seems most appropriate at the moment. There is no reason why opponents of the measure should keep alive a Bill which its supporters do not think of sufficient importance to justify their presence in the House in the required numbers. Dr. Cox may have thought the Bill a very excellent Bill, and no doubt the B.M.A. and its friends spent much time and money on its presentation, but that is no reason why its opponents should go out of their way to do the Bill a good turn. Quite recently the trade union Workmen's Compensation Bill was to have a first reading at the House of Commons this session. The night before, an all-night sitting started and was continued so long into the next day that an opportunity for the debate on this Bill was lost. But the trade union movement could not object to this ordinary Parliamentary procedure, and it is simply taking steps to wait for another opportunity. It is statesmanship to accept defeat democratically administered.

I think the B.M.A. made the usual mistake here of not consulting democratic representatives as to the chances of success of this measure. Certainly, so far as I know, the trade union movement and certainly the Trades Union Congress General Council were never officially approached: that is, the B.M.A. and its supporters thought that a representative organization with a membership of over three million voters was not worth approaching for negotiation and consultation on such a Bill to see if any agreement could be arrived at. It is a pity that B.M.A. strategy lacks such political insight, and I do think that before Parliamentary institutions are criticized in the tone of Dr. Cox's letter the B.M.A. should have taken pains to absolve itself of criticism of neglect of vitally interested persons and their representatives. I hope that on the next occasion this mistake will not be made by those professional interests supporting the Bill.—I am, etc.,

Transport House, Smith Square, S.W.1, April 20th. H. B. MORGAN.

*** It is necessary to point out that the Bill was originally promoted by the Parliamentary Food and Drugs Subcommittee, and that the British Medical Association was one of the many organizations asked to interest itself in the drafting and promotion of the Bill. —ED., *B.M.J.*

Anthropophobia

SIR,—Dr. A. J. Brock holds that large cities produce a crowd psychology or mob mentality which leads to nationalistic panic, rearmament, birth control, unemployment, and half-living in machine-minding careers—a syndrome which he regards as an anti-vital neurosis and calls anthropophobia. He chides our medical leaders and the world's statesmen for not seeing this as he does, in spite of all we hear about the disturbing demands of various nations for more room and about widespread undernutrition even in England. However, I have considerable sympathy with his remedy of a back-to-the-land movement, and I offer him my support on the basis of the following propositions: (1) that it should be regarded as unpatriotic to have a family of less than three children, unless on account of poverty or bad heredity; (2) that sterilization and abortion should be available to any person with two children; and (3) that there should be an annually increasing tax on imported food.—I am, etc.,

London, S.W.15, April 13th. B. DUNLOP.

Recruitment of Medical Men in a National Emergency

SIR,—The pursuit of ideals should not blind our profession to the practical points raised by several of us as a result of Colonel Walsh's letter. I am sure all of us are as eager for the maintenance of peace as is Dr. Boyde. Do Drs. Boyde, Booysen, and Leff object to the preparation of a scheme *now* which would come into action in time of war? To prepare such a scheme does not detract from the value of any efforts to prevent war. Dr. Leff, in effect, says, "Wait until war is inevitable before dealing seriously with this problem." How much time does he think that will allow? In 1914 the inevitability of war had been apparent to a few, such as the late Lord

Roberts, for some years, but to the majority of the nation for about one week. If Dr. Leff has a wife and children surely his anxiety on leaving them, if war should come in spite of all efforts to avert it, would be less if he knew that a plan to protect their future would come into operation. Such a proposal as that made by Colonel Walsh and supported by me is no more anti-ideal than is the taking out of an insurance policy. To ignore life as it is will not help to preserve civilization.—I am, etc.,

April 10th. B.E.F., 1914–18.

Indoor Assistantships

SIR,—Is it in keeping with the dignity of the profession of medicine for this discussion to be given such publicity? It seems to be forgotten that the *British Medical Journal* lies on the table of the large majority of clubs and many public libraries. It is comparable to the letters written to the daily papers by disgruntled general servants. The obvious remedy for the complainants was to have resigned.

> "The fault, dear Brutus, is not in our stars,
> But in ourselves . . ."

—I am, etc.,

Ascot, April 19th. H. C. CROUCH.

*** This correspondence is now closed.—ED., *B.M.J.*

Universities and Colleges

UNIVERSITY OF LONDON

Presentation for Degrees

The ceremony of presentation for degrees will take place at the Royal Albert Hall on Wednesday, May 13th, at 2.30 p.m. The annual service for members of the University will be held at Westminster Abbey at 5.30 p.m., when the preacher will be the Rev. Prebendary R. Hanson. The graduation dinner will take place in the evening at the Grocers' Hall, when the Chancellor will preside.

Appointment of Representatives

The following appointments have been made by the Senate: Mr. W. G. Spencer as a member of the Educational Board of the British Social Hygiene Council; Dr. R. A. Young as representative of the University at the twenty-second Annual Conference of the National Association for the Prevention of Tuberculosis, to be held in London from July 16th to 18th; and Sir Cooper Perry as representative of the University on the governing bodies of the National Training College of Domestic Subjects and the Battersea Polytechnic.

Lectures

A course of three lectures on biochemistry of the sterol group will be given at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., by Professor A. Butenandt of the Organisch-Chemisches Institut, Technische Hochschule, Danzig, on May 5th, 7th, and 8th, at 5.30 p.m. At the first lecture the chair will be taken by Professor E. C. Dodds.

Professor Arthur Stoll of Basle will deliver a course of three lectures on cardiac glucosides at the Pharmaceutical Society, 17, Bloomsbury Square, W.C., on May 12th, 13th, and 14th, at 5.30 p.m.

A lecture on the laws of excitation of the autonomic nervous systems, with reference to chemical mediators, will be delivered by Professor Henri Fredericq of the University of Liége at King's College, Strand, W.C., on May 15th, at 5 p.m., with Sir Henry Dale, F.R.S., in the chair.

A course of two lectures on perimetry will be given by Mr. H. M. Traquair at University College Hospital Medical School, University Street, Gower Street, W.C., on May 18th and 19th, at 5.30 p.m.

A lecture on some recent developments in individual psychology will be given by Dr. Alfred Adler of Vienna at University College, Gower Street, W.C., on May 21st, at 5.30 p.m., with Professor C. L. Burt, D.Sc., in the chair.

Admission to all the above lectures is free without ticket.

Fishmongers' Company Studentship

The Fishmongers' Company Studentship provides free tuition for one academic year in the course for the Diploma in Public Health at the London School of Hygiene and Tropical Medicine. It is awarded on the results of an examination, the scope of which is within the syllabus for the third examination for medical degrees (or the M.B., B.S. examination) of the University of London. The examination for the Studentship will next be held at the school on June 29th and 30th, and applications must reach the secretary by June 15th.

UNIVERSITY COLLEGE

Bucknill Scholarship

The examination for the Bucknill Scholarship, value 160 guineas, and for two exhibitions, value 55 guineas each, will begin on May 11th. The subjects for the examination are chemistry, physics, botany, zoology, and English essay. The scholarship and the two exhibitions are tenable at University College, London. Entry forms should be obtained from the secretary of University College, Gower Street, W.C.1, and returned forthwith.

UNIVERSITY OF GLASGOW

A graduation ceremony was held on April 18th, when the following degrees, among others, were conferred:

M.D.—†R. T. Fletcher, †M. Jackson, †E. A. Underwood, ‡R. MacN. Buchanan (*in absentia*), A. T. Elder, J. Hill, A. R. Miller, R. H. Moyes, Helen I. Robertson (*in absentia*), Elizabeth N. Young.

B.Sc. (PURE SCIENCE).—B. N. P. Bannatyne, M.B., Ch.B.

M.B., CH.B.—*I. Zerlin, ‡R. A. R. Taylor, ‡A. Dunn, ‡J. Devine, ‡S. Mair, I. Aitchison, J. G. Aitken, G. McG. Barr, J. B. Barr, G. F. Boyle, J. G. Brown, J. L. Burnet, J. G. Cairns, K. Cameron, Barbara C. Carment, L. Cohen, P. J. Connolly, D. Cryan, A. D. Cuthbert, Janet B. Dalgetty, M. Dantow, W. L. Girvan, C. W. H. Gourlay, W. J. Gray, J. H. Hamilton, R. M. Heggie, R. Hillman, K. C. Hutchin, J. M. Livingston, J. P. S. McConnell, R. S. McDougall, R. M. Maxwell, J. W. Miller, W. S. Miller, A. S. Moodie, R. A. Murphy, W. Y. Smith, W. A. McE. Stewart, H. A. Sutherland, Alice M. Taylor, W. J. Walker, D. Watson, D. B. Watson, Mary G. W. Watson, S. Weinbaum, W. E. Whyte, A. L. Wilson, J. Wishart, C. N. Young.

UNIVERSITY PRIZES.—Captain H. S. Ranken, V.C., Memorial Prize: J. G. McMenemy. Bellahouston Gold Medals: T. Nicol, J. B. Rennie, W. R. Snodgrass. Macewen Medal in Surgery: R. G. Henderson.

SPECIAL CLASS PRIZES.—Surgery—Macleod Gold Medals: R. T. S. Gunn. Laryngology and Rhinology—Asher Asher Gold Medal: C. W. Maclay.

* With honours. † With high commendation.
‡ With commendation.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glas.:

C. Abramson, E. Brauer, C. P. Bringle, G. Chelvadoray, D. G. W. Clyne, Y. M. Dadoo, W. J. Ess, F. H. Feldman, S. Fertig, Margaret A. H. Godfrey, M. Green, F. H. Haine, A. D. Hoffmann, Mildred P. Hudson, C. K. Joannidis, L. Jost, Edith L. Kander, W. Lees, J. D. Milne, B. K. Palit, T. Reiter, J. C. Reveillaud, S. J. Shapiro, K. Shepherd, H. Simchowitz, D. D. Simmons, Irma Simon, O. F. Warner, A. Wassef, C. M. Wells, J. D. T. Wilson.

The Services

HONORARY SURGEON TO THE VICEROY

Colonel A. A. McNeight, I.M.S., has been appointed Honorary Surgeon to the Viceroy and Governor-General of India, vice Colonel W. T. McCowen, I.M.S. (ret.).

DEATHS IN THE SERVICES

Lieut.-Colonel Arthur Edward Morris, R.A.M.C. (retired), died at Cheltenham on February 13th, aged 76. He was born on August 31st, 1859, was educated at Queen's College, Galway, where he gained an exhibition in natural philosophy and physiology, and graduated M.D. and M.Ch. of the Royal University of Ireland in 1883. Entering the Army as surgeon on May 30th, 1885, he became lieutenant-colonel after twenty years' service, and retired on December 26th, 1917. He served during the war of 1914–18, and was granted an honorary colonelcy from June 3rd, 1919.

Obituary

SIR HAMILTON BALLANCE, K.B.E., C.B.,

M.D., M.S., F.R.C.S.

Consulting Surgeon, Norfolk and Norwich Hospital

We greatly regret to announce the death on April 20th of Sir Hamilton Ashley Ballance, at the age of 68, at a nursing home in Norwich. He survived his elder brother, Sir Charles Ballance, only by a few months. Hamilton Ballance had a distinguished career. He followed in the well-known line of surgeons of East Anglia, and at the time of his death was consulting surgeon to the Norfolk and Norwich Hospital. He received his medical education at University College Hospital and at Heidelberg, and graduated M.B., B.S. of the University of London in 1892, with first-class honours and the gold medal in surgery; proceeded to the M.D. and M.S. degrees, and became a Fellow of the Royal College of Surgeons in 1895. After holding the posts of house-surgeon, house-physician, and senior obstetric assistant at University College Hospital he became in turn house-physician at the General Lying-In Hospital, Lambeth, and resident medical officer at the Victoria Hospital for Children, Chelsea. With this varied experience behind him he went to Norwich as a general practitioner, with obvious leanings towards surgery, and in 1898 was elected assistant surgeon to the Norfolk and Norwich Hospital.

In the South African War he was a surgeon in the Imperial Yeomanry Hospital, and on the outbreak of the great war was immediately utilized by the Army Medical Service, in which he became a colonel. He was a consulting surgeon with the Armies in France, and in 1919 was created C.B. and K.B.E.

His services to the British Medical Association were varied and great. He was honorary secretary of the East Anglian Branch 1901–4, of the Norwich Division 1903, president of the Branch 1927–8, representative 1903–9, member of Council 1906–10. In 1909 he followed Victor Horsley and J. A. Macdonald as Chairman of the Representative Body, but only held the office for one year. He served on many central committees during these years. His last appearance in that capacity, after a long interval, was in 1934, when he served on the Consultants and Specialists Group Committee. He was vice-president of the Section of Surgery at the Liverpool meeting in 1912. Between 1897 and 1921 he contributed a number of papers on surgical subjects to the *British Medical Journal*.

Sir Hamilton Ballance married in 1910 Ruth, daughter of the late Rev. G. S. Barrett, D.D., of Norwich; she survives him with two sons and a daughter. Since his retirement from active work he had lived mainly at his country home in Aylsham, Norfolk.

Dr. ALFRED COX writes:

It is a depressing thing to see so many of one's old B.M.A. friends disappear from the scene on which they took such an active part, but I cannot evade the pious duty of saluting the memory of Hamilton Ballance. He took a keen interest in the reorganization of the Association in the very early days, and did yeoman service for it in his own area. In the Representative Body he was soon marked out for central work. His appearance was impressive, and his contributions to debate always sound and to the point. I think it was his friendship with Horsley and Whitaker which first drew him into the fighting arena. Before Macdonald retired from the chair Ballance had been persuaded to accept the succession, and he proved to be the right man in an onerous and responsible position. But early in his year of office he told us that he, the supposed inveterate bachelor, was marrying, and that his new responsibilities would prevent his going on. I wonder how many of us who benefit by the devotion of these men in high places realize the enormous claims made on their time? As he said in his valedictory speech, to continue in the post meant for a country practitioner giving up six weeks of his time in a year, not to mention all the correspondence and attention entailed on a conscientious officer. And I remember how he suggested that as his successor Ewen Maclean was a bachelor we should "keep his nose to the grindstone" in case he should be tempted to follow the example of his predecessor!

The central work of the Association lost a very good man in Ballance, though he kept up his interest in its local affairs. He was as steady as a rock, and a most conscientious worker—no detail was too small for him. It is interesting to note that his first chairmanship was that of the Contract Practice Subcommittee in 1908, then engaged in trying to bring order out of the chaos disclosed by the Contract Practice Report, and during his chairmanship were drawn up the first model rules for public medical services.

At first acquaintance he seemed austere and unapproachable, but on closer acquaintance one found an essentially patient and kindly man, with a full sense of humour and fun. When I last heard from him he was waiting calmly for the end, and in a letter which must have cost him much trouble he recalled the happy, strenuous days of long ago.

M. HAMBLIN SMITH, M.A., M.D.

Late Medical Officer, H.M. Prison, Birmingham

Dr. Maurice Hamblin Smith, who died on April 15th, had spent almost the whole of his professional life in the Prison Medical Service, and was for many years lecturer on criminology in the University of Birmingham and at the Bethlem Royal Hospital. He was a member of the Royal Medico-Psychological Association, an associate member of the British Psycho-Analytical Society, and a past-president of the Birmingham Psychological Society. He had been deputy medical officer of the Manchester, Wandsworth, and Dartmoor prisons, and medical officer to the Portland, Stafford, and Birmingham prisons. He was a frequent contributor to the medical journals, for some years joint editor of the *Journal of Mental Science*, and in 1922 published *The Psychology of the Criminal*, a book based on twenty-three years' experience in local and convict prisons, and more particularly upon his work with offenders from courts in Birmingham and the adjacent districts. Hamblin Smith's main object in this book was to demonstrate the importance of a thorough examination of the individual offender, especially in regard to his mental make-up. He was convinced that only by a great extension of this line of investigation could the problems of criminality be solved.

J. M. M. sends the following personal appreciation:

I first met Maurice Hamblin Smith at Peterhouse, Cambridge, in the autumn of 1889, when he was captain of the College boat club and had just changed over from mathematics to medicine. The name had been familiar for many years, as I was taught algebra from his father's well-known textbook; in personality he resembled his father closely. On leaving Cambridge he entered Guy's Hospital, and qualified in 1896. He started in private practice at Silverdale, Staffs, but soon decided that official life would be more congenial and joined the Prison Service. In this he had a wide experience, acting as medical officer at many prisons, including Wandsworth, Princetown, Portland, and Stafford. This experience impressed upon him the importance of a close knowledge of the mental condition of his charges, and he devoted the later years of his life largely to the psychological side, earning a wide reputation in the medico-legal world, not only in this country but also in the United States. One result was that when the Birmingham magistrates desired a man who could give them helpful advice Dr. Hamblin Smith was chosen for the position of medical officer for the Winson Green Prison, Birmingham—his last official appointment. But his duties were not restricted to his local appointment, for his advice was sought far afield in difficult criminal cases, and one stormy Christmas Eve he was taken by a destroyer overseas to examine a prisoner. The high esteem in which he was held by the Birmingham magistrates and his official colleagues was evidenced by the generous presentations made to him on his retirement in March, 1933, when he removed to Oxford. Of this side of his work and life his psychological colleagues can speak in greater detail, but to one who had the privilege of his friendship for forty-seven years, his personal qualities were even more attractive. In 1897 he married a lady who suited his disposition admirably. They had two children—a son and a daughter—and a more happy family it is difficult to imagine. This human side of his character we had good reason to know in the course of joint family parties on holiday. But shortly after his retirement he lost his son, an assistant commissioner in Sierra Leone, who died suddenly from pneumonia. About the same time his wife gradually lost her sight, and in October, 1935, she died after a long and painful illness. Hamblin Smith's written works will survive as a memorial of his life's work, though the memories of his happy qualities as a husband, father, and friend may fade. With the only surviving member of the family, a devoted daughter, the deepest sympathy will be felt.

SAMUEL OSBORN, F.R.C.S.

Past Master, Society of Apothecaries

Mr. Samuel Osborn, who for seven years represented the Society of Apothecaries upon the General Medical Council, died at his home at Datchet, near Windsor, on April 16th, the day after his 88th birthday. He was one of H.M.'s Lieutenants for the City of London and a J.P. for Buckinghamshire, a Knight of Grace of the Order of St. John of Jerusalem, and the holder of several foreign decorations.

His father, Samuel Osborn, F.R.C.S., practised at Brixton, at that time one of the outer suburbs of London south of the Thames, where he was born on April 15th, 1848. After studying medicine at St. Thomas's Hospital he obtained the L.S.A. in 1870, the M.R.C.S. in the following year, and the F.R.C.S. in 1876. He served in turn as house-surgeon, house-physician, resident accoucheur, and surgical registrar at St. Thomas's, and for some years was surgeon to the Hospital for Women, Soho. In the Greco-Turkish War of 1897 he worked with an ambulance, and on the outbreak of the South African War in 1899 he went out with Lord Methuen's column. In the Balkan War of 1912 he served as surgeon to the Red Crescent, and in August, 1914, he went to Belgium with a small ambulance unit under the Croix Rouge de Belgique, afterwards acting as surgeon in charge of Countess Dundonald's Hospital in Eaton Square.

In his earlier years Mr. Osborn had been surgeon to the R.N. Artillery Volunteers, and lecturer and examiner of ambulance work to the London County Council and the St. John Ambulance Association. For his work as chief surgeon to the Metropolitan Corps of the St. John Ambulance Brigade he received the long service medal, the jubilee medal of 1887, with a clasp in 1897, and the coronation medals of 1902 and 1911. He was a frequent writer on ambulance and nursing subjects, and his book *First-Aid to the Injured* was translated into Chinese, French, German, Greek, Hindustani, Italian, Japanese, and Spanish. He was long actively associated with the work of the Society of Apothecaries, of which he had been Master, as well as representative on the General Medical Council, 1924–31.

GORDON HARROWER, CH.M.GLAS., F.R.C.S.ED.

Professor of Anatomy, Singapore Medical College

The untimely death at the age of 46 of Professor Gordon Harrower of Singapore has cut short a most distinguished career, and removed one who had contributed greatly to the progress of science and to the advancement of medical education in the East.

John Gordon Harrower received his medical education in Glasgow, where he graduated M.B., Ch.B. with honours in 1918, being awarded the Brunton memorial medal for the leading student of his year. Specialization in anatomy followed, and he became D.Sc.Ed. in 1925, F.R.S.Ed. in the following year, and F.R.C.S.Ed. in 1931. He proceeded to the Ch.M. degree of Glasgow in 1932. After a few years as senior lecturer in regional anatomy at the University of Glasgow he went out to Singapore, where he was elected consulting surgeon to the General Hospital, and devoted himself to research in anthropology as well as in anatomy, occupying the chair of anatomy at the Medical College.

Professor Harrower was well known for his own pioneer work in research, and also for the struggle he conducted

in Singapore for the establishment of the right of other teachers in the Medical College to prosecute original investigations. In 1933 he had contributed an important article on skeletal remains in Kuala Selingsing to the *Journal of the Royal Asiatic Society*, and another on the abdominal viscera on *Nicticebus malayensis* to the *Ceylon Journal of Science*. An article by him on the treatment of cystic hygroma of the neck by sodium morrhuate appeared in the *British Medical Journal* in July, 1933, and he was part-author of an article on bilateral first thoracic ganglionectomy in Parkinson's syndrome in these columns in the following October. Earlier articles by him had dealt with the Hokien and Tamil skull, and righthandedness, illustrating the way in which his keenly investigating genius found objectives in many directions. The inspiration of his personality and his example will long survive his lamented death, for the impetus which he gave to anthropological study in Malaya will be continued by those who came under his influence and instruction.

Dr. ANDREW COPLAND, J.P., who had been president of the local Branch of the British Medical Association for the seven years 1922–9, died at Zanzibar on March 16th, aged 71. He studied medicine at the University of Glasgow, graduating M.B. and C.M. in 1888. After a period as house-surgeon to the Jarrow Memorial Hospital he travelled widely for some years, and in the 'nineties did much work on plague in India and on the identification and classification of mosquitos. He served in the field as a civil surgeon throughout the South African War, receiving the Queen's medal with four clasps and the King's medal with two clasps, and thereafter practised in the Transvaal for six years. In 1908 he went to Zanzibar and made it his home. He was active in his professional work till within a few months of his death. In the Protectorate his influence, though exercised almost unconsciously, was great, and proved a valuable asset in a community so varied in its racial composition. A colleague, "R. S. T." writes: Devoted to his work and possessed of a great love of his fellow men, Dr. Copland gave freely of his accumulated stock of knowledge to all who sought his help, and, in addition, always seemed able to give something of himself—sympathy, hope, encouragement. And if he chose to mingle a little admonition with his therapy few could do so with so rare a tact or so gentle an authority. By his death Zanzibar loses an influence, a character, a personality—which is loss indeed!

Dr. ALFRED ERNEST PAYNE died last week at the age of 61. Born in Leicester, he received his medical education at St. Mary's Hospital, and became a graduate of London University, taking his M.B. in 1898. He started in general practice in Leicester in 1901 and continued work in this field till after the war. He was an enthusiastic amateur photographer and when during the war there was a great shortage of *x*-ray workers he was invited by the commanding officer of the 5th Northern General Hospital to turn his knowledge of photography to account by taking up skiagraphy. He became an eager student of the latter art, and worked enthusiastically at the North Evington branch of the 5th Northern General Hospital till the end of the war, and afterwards continued work of the same kind at the Pensions Ministry Hospital, which took its place. In 1919 he decided to take up *x*-ray work in private as a specialty. In 1924 he was appointed honorary radiologist to the Leicester Royal Infirmary, and went on working here till the age limit was reached. The Board was anxious then to retain his services, and created a new post of director of the radiological department so as to be able to do so. He was also put in charge of the *x*-ray department of the Loughborough Hospital. Dr. Payne was a member of the British Institute of Radiology, and served on its committee for several years. He was one of the founder-members and first chairman of the Midland Branch of that Institute. He was also a Fellow of the Royal Society of Medicine, and had been vice-president of the Electrotherapeutic Section and on the council of the Radiological Section. He was also a founder-member of the British Association of Radiologists and on its council. He had been chairman of the Leicester Division of the B.M.A. and president of the Leicester Medical Society. Dr. Payne was a very conscientious and painstaking worker in everything that he took up, and under his guidance the radiological department of the Leicester Royal Infirmary has developed enormously on both the diagnostic and the treatment side. He was of a kindly disposition, and the wide range of his activities will make him sorely missed. He leaves a widow but no children, as his only daughter died last year.

Professor LOUIS HENRI VAQUEZ, who died at his home in Paris on April 15th, was born in Paris on August 27th, 1860. As well as being professor at the Faculty of Medicine of Paris he was a hospital physician, a member of the Academy of Medicine, and an officer of the Legion of Honour. Even before radiology had become a science he had made his mark as a specialist in diseases of the heart, and it was largely in connexion with such diseases that he enjoyed an international reputation as a consultant. To many medical men outside his own country he was best known as the inventor of the sphygmometer which bears his name.

Medico-Legal

CHANGE IN VALUE OF PRACTICE

A doctor who sells a practice is, of course, bound to disclose truly all relevant details of the income which it has been producing and all the factors affecting that income. The Court of Appeal[1] has just held, however, that if the essential nature and quality of the practice change before the contract is concluded the seller must inform the buyer.

A doctor, A., offered his practice for sale through an agent, representing that it was earning £2,000 a year and that the panel was 1,480. This was confirmed by the accountants employed by B., the purchaser, and was admitted to be true. The statement was made about the end of January, 1934, but the purchase was not actually completed then. Soon afterwards A. became seriously ill, and two consecutive locumtenents took his place. A. attended to the practice during March, but from April 10th he was compelled to absent himself altogether, and the practice was then only earning about £5 a week. On May 1st the agreement was executed to sell the practice to B. for the agreed sum of £4,000, two years' purchase. When B. took possession he found that there was no practice going on at all, and after staying in the house for two or three days, during which time no patients came, he made inquiries, as a result of which he repudiated the contract, on the ground that instead of earning £2,000 a year the practice was only averaging £5 a week, and that the number of patients on the panel was under 1,250. In answer A.'s agent said that A. had only represented the takings as £2,000 a year for the period ending with 1933, during which he was in control of the practice, and that he had made no representations about the present state of the practice.

The question therefore arose whether A., having truly stated the value of the practice when B. inquired about it, had done all he had to do, or whether he was obliged to inform B. of any change that took place before the agreement was signed. Mr. Justice Bennett, who heard the case last October, decided that A. had done all he was bound to do, and that he would only have been bound to disclose the change of circumstances if (1) the contract had been of the kind called *uberrimae fidei*, where scrupulous good faith is demanded, as in a contract of insurance, or (2) if A. had said that he intended to do something and afterwards changed his mind. The Court of Appeal

[1] With *v.* O'Flanagan, 1936, 1 All E.R., 727.

found that the learned judge was wrong, and that it was A.'s duty to disclose the change, although the contract was an ordinary one and did not fall into either of the two classes mentioned by Mr. Justice Bennett. The representation is not merely made once for all ; once A. makes the representation the law considers that he continues to make it at all times until the agreement is signed and the contract is completed. If the circumstances change, then the representation which he has continued to make has become false, and he must set matters right.

This applies to contracts of all kinds where the agreement is not concluded until some time after the representation has been made. It therefore follows that every doctor who sells a practice or a share in one must see that the buyer, at the time when he signs the agreement, knows the true value and nature of the practice at that time, and that every doctor who buys a practice and is not satisfied that it comes up to the description given by the seller may repudiate the contract if he can show that a substantial change took place in the circumstances since the seller's representation and that he was not informed.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

The House of Commons reassembled on April 21st and Mr. Chamberlain opened the Budget. He proposed to increase the standard rate of income tax for 1936–7 by 3d. to 4s. 9d. in the £, and to increase the personal allowance for married couples to £180 and the allowance in respect of children to £60 annually for each child. He further proposed amendments to the law to prevent evasion of surtax by formation of one-man companies, and to enact that the income tax liability of parents shall not be affected by the establishment of educational trusts for their children. The tea duty was increased by 2d. a lb. Mr. Chamberlain announced measures to continue the key industry duties for ten years with amendments, extending these duties in lieu of those now charged under Part I of the Import Duties Act. A surtax is proposed on lager beer from non-Empire countries. The Treasury is to take £5,750,000 from the Road Fund in 1936–7 without curtailing the five-year programme of road construction, and asks powers to bring the produce of the Motor Licence Duties into the general account in 1937–8. The Medicine Duties are unchanged.

On April 21st the Royal National Pension Fund for Nurses Bill was read a second time without debate in the House of Commons. It had already passed the House of Lords.

Public Health: Consolidating Measure

The second reading of the Public Health Bill, a Government measure, was moved in the House of Lords before the adjournment by Lord Gage. The Bill, he said, was based on the work of a Departmental Committee appointed in 1929 to report on the consolidation of the law of local government in England and Wales. From the labours of that committee resulted the Local Government Act, 1933. The committee thereafter considered the codification of the law of public health, but since a Bill dealing with the whole law on this subject would run to 1,000 clauses, it preferred a series of Bills of not more than 350 clauses each. The measure before the House was the first of these, and dealt with provisions strictly of a public health character, principally concerning sanitary matters and the prevention and treatment of disease. Later Bills would deal with streets, open spaces, markets, and food. This Bill covered the combination and division of districts and constitution of port health authorities ; sanitation and buildings, including sewage disposal and building by-laws ; nuisances and offensive trades ; water supply ; prevention, notification, and treatment of disease ; hospitals, nursing homes, and so forth ; notification of births, maternity and child welfare, and child life protection ; baths, washhouses, and bathing places ; common lodging houses, canal boats, and other miscellaneous topics. In the main the clauses of the Bill re-enacted the Public Health Act of 1875 and amending Acts of 1878, 1885, 1890, 1907, 1921, and 1925. Other Acts, such as the Notification of Births Acts of 1907 and 1915 and the Maternity and Child Welfare Act, 1918, which did not technically form part of the public health code, would be re-enacted. The Bill did not deal with London, whose public health administration was founded on separate statutes, except for a few matters in which the L.C.C. asked for the Bill to be applied to its area. The Bill repealed in whole or part thirty to forty Acts of Parliament and substituted 334 clauses for some 600 sections of existing legislation. It combined consolidation with a limited amount of amendment to secure simplicity, uniformity, and conciseness. Opportunity had been taken to clear up points on which the law had been obscure and unsatisfactory, the chief relating to sewers. The Bill also sought to clarify the right of appeal against orders, requirements, and other decisions of local authorities. The Government hoped that a joint committee of both Houses would begin examination of the Bill soon after Easter, and that the measure would reach the Statute Book in the present session. The Bill was welcomed by the associations of local authorities and by the principal bodies concerned in its subject-matter. It did not seek to lay down a perfect public health code, but to gather in orderly and intelligible shape the whole of the law and to provide a firm starting-point for future legislation. To attempt to graft on the present Bill extensive amendments of the law might destroy its chance of reaching the Statute Book.

After some debate the Bill was read a second time without a division and referred to a joint committee, in the appointment of which the House of Commons subsequently joined.

Health Insurance Contribution.—On April 21st Miss Rathbone asked the Minister of Health what had been the total amounts under health insurance of the contributions paid and benefits received by male and female contributors respectively during the last period of twelve months for which figures were available. Sir Kingsley Wood replied that the total amount of contributions received in 1934, the latest period in respect of which complete information was available, was £18¼ millions in respect of men and £8½ millions in respect of women. In the same period payments on account of benefits, including medical benefit, which could be definitely classified on a sex basis amounted to £17,700,000 for men and £10,100,000 for women. In addition £2,580,000 was expended on additional benefits not in the form of cash, the division of which between men and women was not available.

Medical News

A sessional meeting of the Royal Sanitary Institute will be held at Nottingham Guildhall on Friday, May 1st, at 4 p.m., when papers will be read on "A Municipal Common Lodging House," by Dr. Cyril Banks, and on "The Nottingham Main Drainage Works," by Mr. R. C. Aldous, and a discussion on "The Survey of Overcrowding" will be opened by Mr. Alfred Wade.

The British Health Resorts Association has arranged a conference at Woodhall Spa from May 8th to 10th. The two discussions on Saturday, May 9th, will be on "The Value of Spa Treatment in Gynaecological Cases," opened by Mr. J. Bright Banister, Professor Beckwith Whitehouse, and Dr. L. H. Boys ; and on "Food at the Health Resort," opened by Professor E. C. Dodds, followed by Professor V. H. Mottram.

A lecture on the theory and practice of contraception will be given on May 8th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Practical demonstrations will be given on May 15th, at 6 p.m. and 7 p.m. The lecture and demonstrations will be open to students who have completed their gynaecological course and to medical practitioners ; those attending a demonstration should bring rubber gloves.

The Section of Neurology of the Royal Society of Medicine will meet in Amsterdam on Friday and Saturday, May 1st and 2nd. In the morning of May 1st there will be demonstrations at the Neurological Centrum, and in the afternoon a meeting of the Amsterdamsche Neurologen Vereeniging, at which clinical subjects and pathological specimens will be shown by the chiefs of the neurological departments of various hospitals. In the evening members are invited to dinner by Professor and Mrs. Brouwer. On May 2nd there will be a demonstration of neurosurgical cases by Dr. Oljenick, followed by luncheon with the committee of the Amsterdamsche Neurologen Vereeniging.

The Swiss Society for Internal Medicine will hold its annual meeting at St. Gallen on May 16th and 17th, when the chief subjects for discussion will be the relations of the gastro-intestinal canal to blood formation and the development of anaemia, introduced by Professor Naegeli of Zurich, and disturbances of absorption in the intestine and their treatment, introduced by Professor Gigon of Basle. Further information can be obtained from Professor Schüpbach, Seftegenstrasse 2, Berne.

The annual general meeting of the London and Counties Medical Protection Society Ltd. will be held at Victory House, Leicester Square, W.C., on Wednesday, May 6th, at 4 p.m.

At the annual conference of the College of Nursing, to be held on May 1st at 1, Henrietta Street, W.1, Mr. F. A. Lyon, secretary of the Seamen's Hospital Society, will speak on " The Problem of the Small Hospital."

The Fellowship of Medicine announces the following courses: psychological medicine, Maudsley Hospital, April 27th to May 30th ; medicine, surgery, and gynaecology, Royal Waterloo Hospital, April 27th to May 9th ; dermatology, St. John's Hospital, May 1st to 29th ; thoracic surgery, Brompton Hospital, May 11th to 16th ; urology, St. Peter's Hospital, May 18th to 30th ; proctology, Gordon Hospital, May 25th to 30th ; venereal diseases, London Lock Hospital, May 25th to June 20th ; infants' diseases, Infants Hospital, May 2nd and 3rd ; chest diseases, Brompton Hospital, May 9th and 10th ; surgery, Cancer Hospital, May 16th and 17th. Courses in June include an M.R.C.P. clinical and pathological course, National Temperance Hospital ; an M.R.C.P. clinical course in chest and heart, Victoria Park Hospital ; neurology and psychotherapy, West End Hospital for Nervous Diseases ; and week-end courses in medicine and in surgery, Prince of Wales's General Hospital ; obstetrics, City of London Maternity Hospital ; and fevers, Park Hospital. Courses arranged by the Fellowship of Medicine (1, Wimpole Street, W.) are open only to members and associates.

His Majesty the King has consented to become Patron of the British Red Cross Society. Since the formation of the Red Cross organization in 1870 each reigning monarch has been its Patron. Queen Mary is the President, the Duke of York is Chairman of the Council, and the Princess Royal is Commandant-in-Chief of British Red Cross Voluntary Aid Detachments.

Mr. Tom Eastham, K.C., has been appointed by the Lord Chancellor to be an official referee of the Supreme Court of Judicature in succession to Sir Francis Newbolt, K.C., who has retired. Mr. Eastham holds the degrees M.B., Ch.B., and was at one time resident medical officer at the Royal Boscombe and West Hants Hospital. He gave up medicine to practise law, and, after practising as a barrister in Manchester for eighteen years he became a King's Counsel. In 1924 he was appointed Recorder of Oldham, and has held that office for twelve years. In 1927 he was elected a Bencher of Lincoln's Inn.

The council of the National Association for the Prevention of Tuberculosis has appointed Lieut.-Colonel Gordon G. Jolly, C.I.E., V.H.S., M.B., Ch.B., D.P.H., D.T.M., to the post of secretary-general as from July 1st, 1936. Colonel Jolly has had a distinguished career in the Indian Medical Service and is at present Officiating Public Health Commissioner with the Government of India. He has held high administrative posts and has taken much interest in questions concerning tuberculosis.

The League of Nations will award the Darling prize of 1,000 Swiss francs this year for the best work in the pathology, aetiology, and prophylaxis of malaria. Works which have been published within the last five years, as well as unpublished works, may be submitted.

The February issue of the *Bulletin de l'Office International d'Hygiène Publique* contains a preliminary report by Dr. J. H. L. Cumpston, Director-General of Public Health of Australia, of the second International Sanitary Congress of the Pacific, held at Sydney from September 3rd to 6th, 1935.

The issue of *La Presse Médicale* for March 25th contains a sympathetic obituary notice of Sir Charles Ballance.

The March issue of *Aesculape*, the organ of the International Society of the History of Medicine, is devoted to the foot and leg in art, history, and literature.

The University of Marburg has had a tablet placed on the house where Professor A. Bier of Berlin was born on November 24th, 1861. The official address was delivered at the ceremony by Professor Klapp, director of the surgical clinic at Marburg.

Professor M. Askanazy of Geneva has been awarded the Marcel Benoit prize of 30,000 francs for his pathological researches on cancer.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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QUERIES AND ANSWERS

Local Application of Phenol

Dr. RICHARD KERRY (Montreal) writes: What would be the effect of painting an initial lesion of lupus, leprosy, or syphilis with phenol? Erysipelas can be stopped and ringworm or other mould infection abolished by one treatment with carbolic acid. More deeply seated warts and corns can be eradicated by two or three applications if indurated tissue be first removed. I have used phenol for more than thirty years for corneal ulcer without one mishap. The suggested treatment seems to be entirely practical, can do no harm if carefully used, and does not contraindicate constitutional remedies. To try to prevent a local lesion from becoming systemic is surely worth while, and in two of the diseases mentioned the treatment will be valuable even after the infection has made progress.

Occupational Dermatitis

Dr. F. OPPENHEIMER writes: I should be grateful for suggestions regarding treatment of an old-standing and severe occupational dermatitis of the hands in the case of a man employed on plaster and cement work. Change of occupation is, unfortunately, not possible in his case.

Income Tax

Allowance for Car

"QUEX" bought a car on August 31st, 1931, for £140, and sold it on November 7th, 1935, for £40, buying a new car for £139. He was allowed £12 depreciation as for the financial year 1935–6. What should he claim?

*** (1) Obsolescence allowance for the old car to the amount of £140 − (£40 + £12 =) £52—that is, £88—that sum being treated as a professional expense of the year 1935. (2) Depreciation allowance for 1936–7 to the amount of £139 at 22 per cent. = £31.

Share in Partnership

"SANCTIONS" entered into partnership with A. and B. on January 1st, 1935. Income tax returns have been made on the basis of the year to December 31st. The payments which should have been made to him from the firm's banking account are in arrears owing, he believes, to excessive drawings by the other partners.

*** The partnership return is signed by the precedent acting partner only, and the amount is based on the firm's receipts and independent of the sums drawn by the various partners. Each partner, of course, signs the declaration of his total income, including his share of the firm's assessment. With regard to the possibility that C. might take some action *vis-à-vis* the banking account, we advise him to consult a solicitor before doing so. In the absence of a stamped agreement as to the precise terms of partnership the matter is obviously one of some difficulty.

Return to United Kingdom

"L. C. N." holds a colonial appointment, his salary being paid locally and then transferred to an English bank. He expects to come to England to settle in practice in the autumn. What would be the basis of his liability in that event? (It is assumed that he is not maintaining a residence in the United Kingdom while serving abroad.)

*** In the circumstances "L. C. N." will become an English resident as for the financial year 1936–7, and will be liable for tax on (*a*) such of the colonial earnings as may be paid to him here, and (*b*) the amount of his earnings from coming to this country up to April 5th, 1937. No assessment would be made on him until after that date, so tax would not be collectable until the summer of 1937. If, however, he acquires a share in a practice he might have to account in, say, February, 1937, for a moiety of the tax assessed on the practice and applicable to his share for the period to April 5th, 1937, of the partnership assessment.

LETTERS, NOTES, ETC.

Physical Culture

Dr. MUNGO DOUGLAS (Bolton) writes: It is remarkable that the lengthy report of the Committee on Physical Education and its appendix containing the history of physical education makes no mention of the most comprehensive and most scientifically conceived method of education which embraces within its processes true physiological physical education. I refer to the method of F. Matthias Alexander of London. Starting from his still little-realized discovery that human sensory appreciation is defective, Alexander realized that these degenerations, which have been the stimulus to the present and earlier inquiries, were the outcome of misdirection of our bodies, occasioned by imperfect consciousness of what was happening at the termini of lines of sensory communication, coupled with complete lack of knowledge of the physiological means whereby directions, not manifestly misdirections, could be brought into being. In seeking to find how sensory appreciation could be made more reliable, and how misdirections, the coincidents of degenerations, could be prevented, he came upon the key to physiological direction within the animal body. This key was a complex of cerebral activity, awakened by sensory appreciations, dispatching impulses along still-to-be-discovered nerve paths to muscle groups acting co-ordinately throughout the body, with the primary resolve of all these activities that the head was given a certain relation to its co-ordinate part—the neck. To this subtle complex, which could be impressed upon consciousness, and could be aroused when consciousness was fully alert by the flow of environmental stimuli, Alexander gave the name primary control. Permitted its physiological urge, this primary control conditioned secondary controls and directions throughout the body; and it may be observed that the functional result, the consequence of the activity of these controls, is the aim of the physical educationalist, to wit, a unified being, balanced in the interaction of his mental and physical processes, obedient to that first discipline, his own physiology, and with ever-quickened sensitiveness to his own functioning and his responses to his environment. But Alexander's discoveries and the application of his principles of technique mean much more than this, for they imply the use of the whole body in all man's activities, and include no such absurdities as the setting aside of an hour a week or a day for physical education, while during the remaining time degeneration continues as before. The report suggests that the inquirers did not direct themselves to the causes calling for the need of physical culture, but rather to a consideration of common methods of physical culture now extant. Had they directed themselves to causes they would have discovered that none of the systems they considered took cognizance of the needs to be met by a satisfactory system.

Histidine Treatment for Peptic Ulcer

"A. G." (Bathford) writes: Hearing that a friend in South Africa had been starving for three weeks in hospital in one of many vain attempts to vanquish a long-standing ulcer, I sent him information about "larostidin," with the suggestion that he and his doctor might care to embark on this experiment. On Christmas Eve I received from him a letter in which the following passages occur: "I immediately saw my doctor and procured the histidine. I have had thirty-six injections during the last five weeks. I also ate normal food, including beef and vegetables and pastry, etc. Within a week I felt better, and after ten injections had no further pain of any kind. I am rapidly regaining weight (I had lost 25 lb.). Yesterday I was examined by *x* rays: there were no spasms, and the ulcer shows as completely healed. In general I feel better than at any time in the last twelve months. . . . The ulcer is in the duodenum, and has been a trouble since at least 1926, though I was ill two or three years before that from dyspepsia. I have had Sippy treatment in hospital four times since 1926." I wrote at once to suggest a more orthodox moderation in their appreciation of the treatment, and am hoping in due time to hear further of his adventures. It seems that in cases in which histidine is going to give beneficial results improvement is manifest by the end of the first half-dozen injections. This being so, it would seem to be worth trying the treatment to that extent in all gastric cases. I feel myself also that the possibilities of histidine should be explored, not only in cases of definite or probable ulcer, but for states of vague dyspepsia and ill-health, which may actually be pre-ulcer conditions, or in some way, chemically or metabolically, allied to that complaint. With regard to the point made by Mr. McNeill Love in your issue of March 21st, that cure cannot be certainly predicted as the "diathesis" still remains, there seems no reason why a treatment which is potent to control the "diathesis" at an advanced stage of pathological activity should not be able to do so during any early signs of undesirable recrudescence.

The Fatal Bath

Brigadier-General F. E. BURNHAM (Halcyon Hot Springs, B.C.) writes: The daily press relates the incident of a man who died as the result of a bath. In my bag of reminiscences of forty years in the practice of medicine I find a similar incident. A farmer of middle age presented himself at our office in Southern Manitoba for a trivial complaint. As his living conditions were not good, he was sent to the hospital for a few days of rest and change. On admittance to the hospital he refused to have a bath on the ground that he had not had one for twenty-two years, and he was sure that if he did he would take pneumonia and die. Notwithstanding his objections he was put into a tub and well scrubbed. In three days he had pneumonia, and in eight days he was dead.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 54, 55, 56, 57, 58, 59, and 62 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 60 and 61.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 248.